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USING EYE TRACKING TO REFRESH RESEARCH METHODOLOGIES

CRINA MARINĂ[1]*, OANA BENGA[2]

ABSTRACT. Recent literature points to the emergence of a promising methodology that can be used in a wide range of research domains, eye tracking. This paper summarizes the most frequently used indices used in eye tracking and what they relate to in terms of mental processes. Since there is a scarcity of studies that outline and focus on the advantages and disadvantages of employing eye tracking, this overview comprises the main benefits and costs of implementation of this new methodology. Also, there is a slight focus on a comparison to Dot probe task when discussing the advantages and disadvantages. In addition, the paper mentions several applications which stand to highlight the possibilities in using eye tracking. Lastly, there is a summary regarding procedural aspects concerning the type of stimuli, exposure time and input frequency acquirement.

Keywords: eye-tracking, eye movements, fixation, saccades, pupil dilation, attentional processes, attentional bias, emotion processing

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ZUSAMMENFASSUNG. Die Fachliteratur aus den letzten Jahren zeigt die Entwicklung einer neuen und vielversprechenden Methode, die in verschiedenen Forschungsbereichen eingesetzt werden kann, nämlich das Eye-Tracking (Augenverfolgung). Dieser Artikel beschreibt kurz die Hinweise, die in der Eye-Tracking-Methode verwendet sind und wie sie sich auf die kognitiven Prozesse beziehen. Da es relativ wenige Studien, die sich auf die Vor-und Nachteile der Anwendung dieser Methode konzentrieren, gibt, fasst diese Synthese die wichtigsten Vorteile und die anfallenden Umsetzungskosten dieser neuen Methode um. Wir möchten auch Vergleichen mit der Dotprobe-Aufgabe, wenn es sich um die Vor- und Nachteile handelt. Außerdem erwähnt dieser Aufsatz einige theoretische Anwendungen, die die angeblichen Verwendungsmöglichkeiten dieser neuen Methode hervorheben. Am Ende befindet sich eine Zusammenfassung der Aspekte des Verfahrens, d.h. die Art der Reize, der Dauer der Exposition und die Häufigkeit der Sammlung der Informationen, die in den beschriebenen Hinweisen verarbeitet werden.

Schlüsselwörter: Eye-Tracking, Augenbewegungen, Fixationen, Blicksakkaden, Pupillenerweiterung, Aufmerksamkeitsverfahren, Aufmerksamkeitsverfahren, Aufmerksamkeitsverzerrung, emotionale Verarbeitung

Introduction

An overview of studies using eye tracking reflects the evolution of this technique since its debut, in all fields of research that use it. It has become one of the best non-invasive procedures used to this day, not only in psychology but in a variety of domains that require knowledge about the gaze of an individual. Preeminently, it has been used in studies

looking at human-computer interaction (Jacob & Karn, 2003), marketing and advertising (Wedel & Pieters, 2008), neuroscience (Duchowski, 2002), animal behavior (Mitchell, Sundberg, & Reynolds, 2007), developmental, cognitive and clinical psychology (Duque & Vazquez, 2015; Matsuda, Okanoya, & Myowa-Yamakoshi, 2013; Spering & Carrasco, 2015) and even geography (Kiefer, Giannopoulos, Raubal, & Duchowski, 2017). Eye movements captured by the eye tracker are used to get a better understanding of how the participant visually processes a certain stimulus, that is, where he looks and the duration of the gaze (Granka, Joachims, & Gay, 2004). In addition, ocular movements enable one to determine a pattern in stimuli processing, providing a dynamic track of the directionality of attention in a visual display and of the amount of processing applied to a particular target (Poole & Ball, 2006).

The aim of this paper is to examine some of the aspects that make eye tracking suitable for answering certain research questions, especially in the field of psychology, with an emphasis on emotional processing, attention and other cognitive processes. Its purpose is to briefly describe the metrics involved in research for a better understanding of their use, while outlying some of the advantages of incorporating new methodology such as this. This overview also intends to draw attention to a part of the applications of eye tracking, as to highlight the possibility of adding knowledge to previously studied topics and the ability to gain insights on new subjects.

Specific eye tracking measurements / indices

In psychological research, eye tracking can be achieved through different hardware options. There are several ways researchers can measure eye movements: contact lens-based, electrooculogram-based

and video based (Lupu & Ungureanu, 2013). Most commonly, because of its ease and comfortability, studies have used the video-based eye trackers, capturing the gaze as the participant looks at a stimulus that is presented on a screen in front of them.

The principle of origin behind using eye tracking in research is the eye-mind hypothesis (Just & Carpenter, 1976, p. 471), which states that "the locus of the eye fixations reflects what is being internally processed". To be able to infer certain findings, one must know the key measures/ indices specific to this type of procedure. These provide additional information about the processed stimulus and are all related to the movement of the eye, namely, fixations, saccades, pupil dilation, scan paths, gaze and blink rate (Granka et al., 2004).

A more detailed account of these measures involves splitting them into categories. As such, there are three scales: *temporal, spatial and count*. The *temporal* scale includes measures such as: total fixation duration, gaze duration, average fixation duration, time of first fixation, revisited fixation duration, proportion of fixation duration. Measures included in the *spatial* scale are fixation position and fixation sequence, while the ones included in the *count* scale are fixation count, average fixation count and revisited fixation count. Typically, measures are aggregated in what researchers call *areas of interest* (AOIs) and are further used in comparisons and more complex analyses (Nguyen, Richards, El-Nasr, & Isaacowitz, 2015). Some authors say that these measures are rather problematic to interpret, because there is difficulty in establishing the level of processing involved. Thus, without knowing the (superficial vs. deeper) level of information processing, it is hard to determine the nature of this processing (Xue, Quan, Li, Yue, & Zhang, 2017). Still, most commonly research has shown particular interest in fixations and saccades, either aggregated in the form of a scan path or

independent (Jacob & Karn, 2003; Poole & Ball, 2006). Fixations (i.e. the time spent on a certain area of the stimulus) are related to the amount of information processed and acquired, the interest raised by the target, its complexity or the participant's difficulty to encode it (Poole & Ball, 2006). Under the assumption that fixating an object, or an area means paying attention to it, fixation frequency reflects the importance of that object or area, while the duration of a fixation indicates the level of difficulty in selecting information from the stimulus (Jacob & Karn, 2003). On average, a fixation lasts 250 ms, but this measure ranges from 100 ms to 500 ms, depending on the viewed material. Saccades, the movement between fixations, are relevant as well since they indicate the difficulty of processing, especially if they are made backwards (Poole & Ball, 2006). Moreover, these movements reflect shifts in attention that can be either controlled or involuntary, indicating either higher order cognitive abilities or reflexive orienting (Eckstein, Guerra-Carrillo, Miller Singley, & Bunge, 2017). Saccades also vary in duration, depending on the stimulus, ranging from 30 ms in a reading task to 50 ms in a scene viewing task. Other complementary measures include inter featural saccade ratio, which indicates the level of generality in information processing (i.e., a higher ratio is indicative of more global processing style) and feature gaze duration, that is, the mean time spent looking at the features (longer time meaning more local processing).

Besides these frequently utilized measures, new research points to the emergence of other two parameters: pupil diameter and spontaneous blink rate. These parameters are not at all novel, but their measurement has been conducted manually or with other custom-made devices (Eckstein et al., 2016). However, eye trackers make these data easy to obtain and allow automated processing through specific software. Changes in pupil dilation reflect cognitive changes, according to Kahneman (1973,

2011), thus being the best index of attentional effort reflecting the usage of mental energy. Nonetheless, pupil dilation is also indicative of autonomic activity (Samuels & Szabadi, 2008). Autonomous processes include task-evoked changes indicative of mental activity (e.g. Sirois & Brisson, 2014) or arousal (Samuels & Szabadi, 2008), dilation being present throughout the period of cognitive load (Granholm, Asarnow, Sarkin, & Dykes, 1996). Moreover, pupillary dilation reflects the interplay between autonomous activity and conscious processing, especially under uncertainty (e.g. Preuschoff, Marius't Hart, & Einhauser, 2011). Not only this, but pupillary measures have been found to predict how much new information is used when readjusting existing beliefs (Nassar et al., 2012). Besides task-related arousal, psychologists have also studied pupillary responses during exposure to pleasing stimuli, such as erotic pictures (e.g. Rieger & Savin-Williams, 2012) or even music (e.g. Laeng, Eidet, Sulutvedt, & Panksepp, 2016). These studies usually look at interindividual differences, sex differences or intraindividual variability when exposed to a variety of pleasing stimuli. On the other hand, spontaneous blink rate has been regarded as a proxy of dopaminergic activity, reflecting functions like cognitive control and learning (e.g. van der Schaaf et al., 2014; Westbrook & Braver, 2016).

Advantages of using eye tracking in research

Currently, using the eye tracker presents several advantages, which places it among researchers' favorite methods. Compared to the input one participant can give using a keypad or a mouse, eye movement is distinctly faster and does not require training in advance (Sibert & Jacob, 2000). One task used in the study of attentional biases and emotion

processing is the Dot probe task, which involves a quick motor response from the participant after being exposed to a target for less than one second. However, reaction time variables are vulnerable to the confounding effect of delayed response execution due to slowing or "freezing" (McNaughton & Corr, 2004), limitation that cannot be resolved by modifying the task but only by additional methodology (i.e., fMRI, ERP etc.) (Armstrong & Olatunji, 2012). For example, in the case of threatening stimuli, the presence of threat does not affect eye movement by increasing its latency, however response time in such case appeared to be affected (Nummenmaa, Hyönä, & Calvo, 2006). Moreover, eye tracking provides the researcher with a real-time assessment of ocular movements, which makes it suitable for studies in the field of attention, brain functioning, emotion processing, reading or reasoning (Mele & Federici, 2012). By continuously recording the eye gaze, it can be effectively used to measure selective attention (Awh, Armstrong, & Moore, 2006; Weiser, Pauli, Weyes, Alpers, & Muhlberger, 2008) Bradley and Mogg (2005) state that attentional biases have a greater possibility of being observed if the procedure allows for an elaborate processing, supporting Eizenman and colleagues (2003) affirmation that some aspects of attention are better measured by extending the stimulus presentation time. Nevertheless, allowing more time for processing may help overcome certain limiting conclusions, especially in psychopathology research. For example, Bradley and colleagues (1997) found that dysphoric participants showed no mood congruent bias when the stimuli were briefly presented (14 ms), which lead Sanchez and colleagues (2013) to hypothesize that a more extended exposure time (i.e. at least 1000 ms) may result in observing a bias in the case of depressed participants.

While the Dot probe task has been the subject of constant innovation, the main limitation is that it provides only a snapshot of the processing some researchers are interested in measuring; nevertheless,

the eye tracking methodology manages to overcome such disadvantage. In essence, eye tracking enables the assessment of more than two or three stimulus durations without overworking the participant, thus yielding a better picture of sustained information processing (Kellough, Beevers, Ellis, & Wells, 2008).

In terms of overt and covert attention, the eye tracking methodology provides a more comprehensive picture of these processes, as eye movements are more proximal to them than manual key presses. This type of technology allows direct measurement of overt attention, while informing about eye movements that have a closer relation with covert attention at the same time (Armstrong & Olatunji, 2012). One major strength of eye tracking is that it enables the assessment of early as well as later stages of attentional processing (that is, vigilance and avoidance), especially in the case of biases (Bangee, Harris, Bridges, Rotenberg, & Qualter, 2013). Attentional processes studied with this type of technology provide answers either to questions regarding these processes themselves or to queries pertaining to emotion regulation strategies. As such, eye tracking has been used both in psychopathological studies (e.g. anxiety and emotion regulation, Calvo & Avero, 2002) and in studies using non-pathological samples, illustrating the mechanisms underlying individual differences inherent to emotion regulation (e.g. Isaacowitz, 2005, 2006).

Another advantage of using eye tracking in psychological research is its suitability for instances when there are some communication barriers, which interfere with the ability to give instructions or receive answers. Such cases are studies with infants (e.g. Hunnius, de Wit, & Hofsten, 2011) or with individuals having certain disorders, for instance autism (Wagner, Hirsch, Vogel-Farley, & Nelson, 2013) or deafness (Emmorey, Thompson, & Colvin, 2008). For example, an interesting finding has sprung with the use of eye tracking on infant samples. It has been observed that babies older

than 3 months of age process moving faces distinctively from static faces, that is dynamic faces processing shows a shift from the eye to the mouth region, whereas when looking at static faces, they focus on the eye region predominantly (Lewkowicz & Hasen-Tift, 2012). On the other hand, eye tracking and dynamic stimuli have also been used to observe and measure deficits in processing in the case of autistic children. For example, Hanley and colleagues (2012) found that children pertaining to the autistic spectrum disorder are characterized by diminished attention to salient facial cues (especially when using dynamic stimuli). Moreover, eye tracking can serve as a tool for neuro-disabled people who still have visual function. In this case, the gaze helps in selecting words and options on a screen. This technology not only helps in research but also in day-to-day life communication, by facilitating socialization and raising the level of independency (Lupu & Ungureanu, 2013).

Disadvantages of using eye tracking in research

One of the disadvantages in using eye tracking technology is its elevated cost, compared to more traditional methods, like the Dot probe paradigm. Also, the Dot probe can be used on a single computer, while the device used in eye tracking requires sometimes multiple operating systems and a complex hardware set up. More disadvantages were encountered in the past when using eye tracking, because the apparatus was difficult to operate, the participant needed to be physically constrained to the whole system, and the analysis of the data was reduced only to few parameters elaborately aggregated by the researcher (Jacob & Karn, 2002). Nowadays, advances in technology brought ease of use, portability and dedicated software for data analysis, nevertheless for a higher price.

Applications

Introducing new procedures and technology yields data that succeeds in complementing existing research or bring into question novel hypotheses. For instance, studies looking at categorization benefited from using eye tracking technology in learning how such classification is performed, both by adults and children. Quinn and colleagues (2007) reported that participants looked at an animal's head first when differentiating between species. Therefore, observing the gaze pattern offers novel insights on well-studied cognitive processing. Being able to use new instruments, such as eye tracking devices, unlocks the possibility of testing new research questions. Illustrating this is the study of visual exploration in the context of remembering autobiographical memories, which can provide a more ecological and reliable description of physiological activity occurring during the retrieval (El Haj, Nandrino, Antoine, Boucart, & Lenoble, 2017). El Haj and colleagues (2014) looked at eye movements during autobiographical retrieval and found that fixations are quite few, but saccades predominate in terms of duration and amplitude. They suggested that this type of recall triggers the same activity as visual imagery, fitting the assumption that memories do come to be relieved in the form of images (Conway, 2009).

Regarding decision making, eye tracking not only offers a wider perspective on these cognitive processes, but also enriches multidisciplinary research, integrating for example spatial perception. It can be used both indoors, in perceiving maps (Netzel et al., 2017), or outdoors to assess orientation (Kiefer, Giannopoulos, & Raubal, 2014) or even visual-motor coordination of drivers (Sun et al., 2016). Thus, this type of knowledge helps in aggregating models that describe how individuals reason about space or even in designing maps (Kiefer, Giannopoulos,

Raubal, & Duchowski, 2017). Not only geography intersects with the field of reasoning, but also marketing, especially when it comes to choosing food (Graham, Orquin, & Visschers, 2012). This domain utilizes mainly eye tracking glasses, but there are also studies done in a laboratory setting. What the researchers want to observe is mainly how the labels, packaging and other information regarding the food influences the customer's decision (Mawad, Trias, Gimenez, Maiche, & Ares, 2015).

As mentioned earlier, eye tracking aids in overcoming standstills in certain research areas, such as psychopathology. Researchers focusing on attentional biases in depression theorized that the bias for mood-congruent stimuli occurs in later stages of processing, rather than in the orienting phase as in the case of anxiety related biases (Duque & Vazquez, 2014; Kellough, Beevers, Ellis, & Wells, 2008). However, without a methodology that allowed for longer stimulus exposure, little was known about the chronological development of attentional biases in depression, whereas knowledge about the constituent elements was still scarce (Armstrong & Olantuji, 2012). Since the inclusion of eye tracking in this field of research, issues like these have been clarified. That is, presenting the stimulus for a longer duration has made it possible for researchers to establish a time course of the attentional bias in depressed participants (Sanchez et al., 2013), and also to assess distinct components of visual attention (Duque & Vazquez, 2014). On the other hand, shorter exposure time is preferred when studying anxiety related biases, in part because increased awareness to the threatening stimuli manifests in the orienting phase (Mogg & Bradley, 2005). Still, the phenomenon has been studied with eye tracking devices that allowed for a conversion of the Dot probe task (Burris, Barry- Anwar, & Rivera, 2017). The button press has been replaced with eye tracking to measure not the latency to press the

button, but the latency to fixate the probe, which increases the accuracy of the task (Price et al., 2014). As such, eye tracking taps more into the neural and attentional mechanism of biases in such disorders. Biases are studied with eye tracking not only in the case of emotional dysfunctionality, but also in disordered eating. People diagnosed with an eating disorder have been found to present attentional biases towards other people's display of emotion, like angry faces (e.g. Harrison et al., 2010; Kanakam et al., 2013), towards food cues (e.g. Giel et al., 2011; Schag et al., 2013) and even towards their own body image (e.g. Jansen, Nederkoorn, & Mulkens, 2004).

Besides aforementioned disorders, eye movements may serve in detecting early signs of cognitive pathology such as dementia or Alzheimer's disease, where the smooth pursuit of the gaze is impaired (Vidal, Turner, Bulling, & Gellersen, 2012). Neurological research showed that eye tracking has an important role, especially in improving knowledge about some disorders. For example, eye coordination deficits may be indicative of Parkinson's disease, Wilson's disease or multiple system atrophy (Gorges, Pinkhardt, & Kassubek, 2014). Facial emotion recognition is also studied in this field, for example in the case of epileptic patients, who are well known to present deficits in processing emotion. Hence, instruments measuring eye movement are useful in assessing how these deficits manifest (Gomez-Ibanez, Urrestarazu, & Viteri, 2014). Eye movements also reflect the progression of a disorder such as Huntington's disease (Georges et al., 2014; Veneri, Federico, & Rufa, 2014), or multiple sclerosis (Prasad & Galetta, 2010; Vidal et al., 2012). Eye tracking in these instances can be useful in monitoring the evolution of the problem, as well as the efficiency of the treatment.

Procedural aspects

There is no universal way researchers use this type of methodology. The choice of apparatus is dependent on the examined hypotheses, some studies needing participants in the field while others want to use a laboratory setting. This choice also impacts the type of procedure that is followed, stimuli ranging from static to dynamic, animations versus real faces and real-life interactions versus stimuli viewed on a monitor. When the paradigm does not study emotion processing or regulation, the stimuli may consist of maps, pictures of food, or even of the self. In the study of attentional biases, emotional processing and regulation, the most prevalent type of stimulus used is a picture of an emotional expression, which is either comprised in a largely used database (i.e., International Affective Pictures System, Lang, Bradley, & Cuthbert, 1999) novel (Chien, 2011) or computer generated (Wieser et al., 2008). Compared to words, scenes and pictures carry more affective information and are preferred in studies regarding attentional processes (Glaser & Glaser, 1989). Nevertheless, the presentation of these pictures differs across studies, variations occurring in the picture dimension, the number of trials presented, ranging from as little as 16 (Owens et al., 2017) to as much as 210 (Jang, Kim, Kim, Lee, & Choi, 2016), as well as in the presentation time, which can be as low as 40 ms (Matsuda, Okanoya, & Myowa-Yamakoshi, 2013) or as high as 8000 ms, with a 1000 ms (Wadlinger & Isaacowitz, 2008) or even 20 s (Owens et al., 2017) fixation cue. There is also variance in the split of the stimulus presentation. Usually there is a period (up to 1000 ms) for the pre-trial, the actual stimulus presentation time (variable duration), and an end or transition period (up to 2500 ms) (e.g. Yrttiaho, Niehaus, Thomas, &

Leppanen, 2017). Occasionally, certain procedures use a random stimulus presentation (up to 2000 ms) in between pre-trial and the actual stimulus display (Duque & Vasquez, 2015; Yrttiaho et al., 2017).

Even though the majority of the studies in the field of emotion and cognition make use of pictures as stimuli, this is not to say that only images are used in this type of psychological research. For example, some researchers use short clips portraying emotion expression to catch a more dynamic representation of processing (e.g. Bal et al., 2010), erotic clips (Carvalho, Pereira, Barreto, & Nobre, 2016), or even other individuals' actions like jumping athletes to investigate attentional effort (Moran et al., 2016). Also, infant studies employ the procedure using real life stimuli, that is a person acting different emotions or behaviors (Gredeback, Johnson, & von Hofsten, 2010; Urakawa, Tokamoto, Ishikawa, Ono, & Nishijo, 2015).

Another aspect to consider, which is not always reported but is nevertheless important, is the sampling rate of the eye tracker. Explicitly, sampling rate represents the frequency at which eye data is collected, measured in hertz (Hz). Due to using a variety of eye trackers, a certain variability in sampling rates can be found. Most frequently, eye trackers have a sampling rate of 60 Hz (e.g. Owens et al., 2017), although lower and higher thresholds can be met, ranging from 30 Hz (Domes et al., 2009) to 1250 Hz (Schmid, Mast, Bombari, Mast, & Lobmaier, 2011). This frequency influences the amount of data found in the software output, as well as the computation methods and statistical analyses. For example, fixation times (1.5 s) can be split into three sections (500 ms, 1000 ms and 1500 ms) to be further analyzed (e.g. Jang, Kim, Kim, Lee, & Choi, 2016), but there is no universal procedure for computation and each study adapts this procedure to fit its objectives and hypotheses.

Conclusion

The present paper provides a thorough review of eye tracking technology use. Though not exhaustive, it advocates for the great utility of eye tracking in several fields of research, which makes it easy to believe that the usefulness of this instrument has yet to reach its limits. Tracking the eye movements refreshes existing studies on one hand and stimulates towards new discoveries on the other hand. Current literature shows that eye tracking has become a tool frequently used in infant studies, mainly looking at information processing mechanisms. Nevertheless, analyzing eye movements can help to early diagnose disorders such as autism, considering that this methodology can be implemented at any age or at any level of functioning. Moreover, eye tracking shows great potential in studies looking at maternal behaviors in relation to infants or toddlers. It can be used to investigate mothers' gaze in moments of child distress and also during attempts of emotion regulation. This could help gaining more insight into mothers' processing of unpleasant situations and their parenting behaviors associated with these situations. Additionally, there is little research regarding gaze tracking in adult personality disorders. Having in mind that personality disorders are linked to specific cognitive styles, it can be of great importance understanding how these influences visual processing. There has also been a steep increase in popularity for virtual reality systems, which have eye tracking features incorporated. Research can benefit from including such systems in hypotheses testing, given the richness of stimulation they provide by immersing the participant into a virtual world. Thus, virtual reality systems seem promising methodologies for the near future.

In light of the fact that eye tracking is versatile and because it can be implemented through a variety of methodologies, the choice of apparatus depends on the researchers' objectives and available resources. Eye trackers have brought important contributions, regardless of the implemented paradigm, in the theoretical, methodological and practical aspects of research. There is no doubt that this type of technology comes with its own set of limitations, nevertheless the benefits of using it outweigh by far the costs. From improving old procedures to creating new ways of testing and assessing psychological phenomena, eye tracking seems to have a steep evolution that will only help bring more knowledge about the human mind.

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REFERENCES

Armstrong, T., & Olatunji, B.O. (2012). Eye tracking of attention in the affective disorders: A meta-analytic review and synthesis. *Clinical psychology review*, *32*(8), 704-723.

Awh, E., Armstrong, K.M., & Moore, T. (2006). Visual and oculomotor selection: links, causes and implications for spatial attention. *Trends in cognitive sciences*, *10*(3), 124-130.

Bal, E., Harden, E., Lamb, D., Van Hecke, A.V., Denver, J.W., & Porges, S.W. (2010). Emotion recognition in children with autism spectrum disorders: Relations to eye gaze and autonomic state. *Journal of autism and developmental disorders*, *40*(3), 358-370.

Bangee, M., Harris, R.A., Bridges, N., Rotenberg, K.J., & Qualter, P. (2014). Loneliness and attention to social threat in young adults: Findings from an eye tracker study. *Personality and Individual Differences*, *63*, 16-23.

Bradley, M.M., Cuthbert, B.N., & Lang, P.J. (1999). Affect and the startle reflex. *Startle modification: Implications for neuroscience, cognitive science, and clinical science*, 157-183.

Bradley, B.P., Mogg, K., & Lee, S.C. (1997). Attentional biases for negative information in induced and naturally occurring dysphoria. *Behaviour research and therapy*, *35*(10), 911-927.

Burris, J.L., Barry-Anwar, R.A., & Rivera, S.M. (2017). An eye tracking investigation of attentional biases towards affect in young children. *Developmental psychology*, *53*(8), 1418.

Calvo, M.G., & Avero, P. (2002). Eye movement assessment of emotional processing in anxiety. *Emotion*, *2*(2), 105.

Carvalho, J., Pereira, R., Barreto, D., & Nobre, P.J. (2016). The Effects of Positive Versus Negative Mood States on Attentional Processes During Exposure to Erotica. *Archives of sexual behavior*, 1-10.

Chien, S.H.L. (2011). No more top-heavy bias: Infants and adults prefer upright faces but not top-heavy geometric or face-like patterns. *Journal of Vision*, *11*(6), 13-13.

Conway, M.A. (2009). Episodic memories. *Neuropsychologia*, *47*(11), 2305-2313.

Domes, G., Lischke, A., Berger, C., Grossmann, A., Hauenstein, K., Heinrichs, M., & Herpertz, S.C. (2010). Effects of intranasal oxytocin on emotional face processing in women. *Psychoneuroendocrinology*, *35*(1), 83-93.

Duchowski, A.T. (2002). A breadth-first survey of eye-tracking applications. *Behavior Research Methods, Instruments, & Computers*, *34*(4), 455-470.

Duque, A., & Vázquez, C. (2015). Double attention bias for positive and negative emotional faces in clinical depression: Evidence from an eye-tracking study. *Journal of Behavior Therapy and Experimental Psychiatry*, *46*, 107-114.

Eckstein, M.K., Guerra-Carrillo, B., Singley, A.T.M., & Bunge, S.A. (2016). Beyond eye gaze: What else can eyetracking reveal about cognition and cognitive development? *Developmental cognitive neuroscience*.

Eizenman, M., Lawrence, H. Y., Grupp, L., Eizenman, E., Ellenbogen, M., Gemar, M., & Levitan, R. D. (2003). A naturalistic visual scanning approach to assess selective attention in major depressive disorder. *Psychiatry research*, *118*(2), 117-128.

El Haj, M., Delerue, C., Omigie, D., Antoine, P., Nandrino, J.L., & Boucart, M. (2014). Autobiographical recall triggers visual exploration. *Journal of Eye Movement Research*, *7*(5).

El Haj, M., Nandrino, J.L., Antoine, P., Boucart, M., & Lenoble, Q. (2017). Eye movement during retrieval of emotional autobiographical memories. *Acta Psychologica*, *174*, 54-58.

Emmorey, K., Thompson, R., & Colvin, R. (2008). Eye gaze during comprehension of American Sign Language by native and beginning signers. *Journal of Deaf Studies and Deaf Education*, *14*(2), 237-243.

Giel, K.E., Friederich, H.C., Teufel, M., Hautzinger, M., Enck, P., & Zipfel, S. (2011). Attentional processing of food pictures in individuals with anorexia nervosa—An eye-tracking study. *Biological Psychiatry*, *69*(7), 661-667.

Glaser, W.R., & Glaser, M.O. (1989). Context effects in Stroop-like word and picture processing. *Journal of Experimental Psychology: General*, *118*(1), 13.

Gorges, M., Pinkhardt, E.H., & Kassubek, J. (2014). Alterations of eye movement control in neurodegenerative movement disorders. *Journal of ophthalmology*, *2014*.

Gomez-Ibañez, A., Urrestarazu, E., & Viteri, C. (2014). Recognition of facial emotions and identity in patients with mesial temporal lobe and idiopathic generalized epilepsy: an eye-tracking study. *Seizure*, *23*(10), 892-898.

Graham, D.J., Orquin, J.L., & Visschers, V.H. (2012). Eye tracking and nutrition label use: A review of the literature and recommendations for label enhancement. *Food Policy*, *37*(4), 378-382.

Granholm, E., Asarnow, R.F., Sarkin, A.J., & Dykes, K.L. (1996). Pupillary responses index cognitive resource limitations. *Psychophysiology*, *33*(4), 457-461.

Granka, L.A., Joachims, T., & Gay, G. (2004, July). Eye-tracking analysis of user behavior in WWW search. In *Proceedings of the 27th annual international ACM SIGIR conference on Research and development in information retrieval* (pp. 478-479). ACM.

Gredebäck, G., Fikke, L., & Melinder, A. (2010). The development of joint visual attention: a longitudinal study of gaze following during interactions with mothers and strangers. *Developmental science*, *13*(6), 839-848.

Harrison, A., Sullivan, S., Tchanturia, K., & Treasure, J. (2010). Emotional functioning in eating disorders: attentional bias, emotion recognition and emotion regulation. *Psychological medicine*, *40*(11), 1887-1897.

Hanley, M., McPhillips, M., Mulhern, G., & Riby, D.M. (2013). Spontaneous attention to faces in Asperger syndrome using ecologically valid static stimuli. *Autism*, *17*(6), 754-761.

Hunnius, S., de Wit, T.C., Vrins, S., & von Hofsten, C. (2011). Facing threat: Infants' and adults' visual scanning of faces with neutral, happy, sad, angry, and fearful emotional expressions. *Cognition and Emotion*, *25*(2), 193-205.

Isaacowitz, D.M. (2005). The gaze of the optimist. *Personality and social psychology bulletin*, *31*(3), 407-415.

Isaacowitz, D.M. (2006). Motivated gaze: The view from the gazer. *Current Directions in Psychological Science*, *15*(2), 68-72.

Jacob, R.J., & Karn, K.S. (2003). Eye tracking in human-computer interaction and usability research: Ready to deliver the promises. *Mind*, *2*(3), 4.

Jang, S.K., Kim, S., Kim, C.Y., Lee, H.S., & Choi, K.H. (2016). Attentional processing of emotional faces in schizophrenia: Evidence from eye tracking. *Journal of abnormal psychology*, *125*(7), 894.

Jansen, A., Nederkoorn, C., & Mulkens, S. (2005). Selective visual attention for ugly and beautiful body parts in eating disorders. *Behavior research and therapy*, *43*(2), 183-196.

Just, M.A., & Carpenter, P.A. (1976). Eye fixations and cognitive processes. *Cognitive psychology*, *8*(4), 441-480.

Kahneman, D. (1973). *Attention and effort* (Vol. 1063). Englewood Cliffs, NJ: Prentice-Hall.

Kahneman, D. (2011). *Thinking, fast and slow*. Macmillan.

Kanakam, N., Krug, I., Raoult, C., Collier, D., & Treasure, J. (2013). Social and emotional processing as a behavioral endophenotype in eating disorders: a pilot investigation in twins. *European Eating Disorders Review*, *21*(4), 294-307.

Kellough, J.L., Beevers, C.G., Ellis, A.J., & Wells, T.T. (2008). Time course of selective attention in clinically depressed young adults: An eye tracking study. *Behavior research and therapy*, *46*(11), 1238-1243.

Kiefer, P., Giannopoulos, I., & Raubal, M. (2014). Where am I? Investigating map matching during self-localization with mobile eye tracking in an urban environment. *Transactions in GIS*, *18*(5), 660-686.

Kiefer, P., Giannopoulos, I., Raubal, M., & Duchowski, A. (2017). Eye tracking for spatial research: Cognition, computation, challenges. *Spatial Cognition & Computation*, *17*(1-2), 1-19.

Laeng, B., Eidet, L.M., Sulutvedt, U., & Panksepp, J. (2016). Music chills: The eye pupil as a mirror to music's soul. *Consciousness and cognition*, *44*, 161-178.

Lewkowicz, D.J., & Hansen-Tift, A.M. (2012). Infants deploy selective attention to the mouth of a talking face when learning speech. *Proceedings of the National Academy of Sciences*, *109*(5), 1431-1436.

Lupu, R.G., & Ungureanu, F. (2013). A survey of eye tracking methods and applications. *Bul Inst Polit Iasi*, 71-86.

Matsuda, Y.T., Okanoya, K., & Myowa-Yamakoshi, M. (2013). Shyness in early infancy: approach-avoidance conflicts in temperament and hypersensitivity to eyes during initial gazes to faces. *PloS one*, *8*(6), e65476.

Mawad, F., Trías, M., Giménez, A., Maiche, A., & Ares, G. (2015). Influence of cognitive style on information processing and selection of yogurt labels: Insights from an eye-tracking study. *Food Research International*, *74*, 1-9.

McNaughton, N., & Corr, P.J. (2004). A two-dimensional neuropsychology of defense: fear/anxiety and defensive distance. *Neuroscience & Biobehavioral Reviews*, *28*(3), 285-305.

Mele, M.L., & Federici, S. (2012). Gaze and eye-tracking solutions for psychological research. *Cognitive processing*, *13*(1), 261-265.

Mitchell, J.F., Sundberg, K.A., & Reynolds, J.H. (2007). Differential attention-dependent response modulation across cell classes in macaque visual area V4. *Neuron*, *55*(1), 131-141.

Mogg, K., & Bradley, B.P. (2005). Attentional bias in generalized anxiety disorder versus depressive disorder. *Cognitive therapy and research*, *29*(1), 29-45.

Moran, A., Quinn, A., Campbell, M., Rooney, B., Brady, N., & Burke, C. (2016). Using pupillometry to evaluate attentional effort in quiet eye: A preliminary investigation. *Sport, Exercise, and Performance Psychology*, *5*(4), 365.

Nassar, M.R., Rumsey, K.M., Wilson, R.C., Parikh, K., Heasly, B., & Gold, J.I. (2012). Rational regulation of learning dynamics by pupil-linked arousal systems. *Nature neuroscience*, *15*(7), 1040-1046.

Netzel, R., Ohlhausen, B., Kurzhals, K., Woods, R., Burch, M., & Weiskopf, D. (2017). User performance and reading strategies for metro maps: An eye tracking study. *Spatial Cognition & Computation*, *17*(1-2), 39-64.

Nguyen, T.H.D., Richards, M., El-Nasr, M.S., & Isaacowitz, D.M. (2015). A Visual Analytic System for Comparing Attention Patterns in Eye-Tracking Data. *Eye Tracking and Visualization (Proceedings of ETVIS 2015)*.

Nummenmaa, L., Hyönä, J., & Calvo, M.G. (2006). Eye movement assessment of selective attentional capture by emotional pictures. *Emotion*, *6*(2), 257-268.

Owens, M., Harrison, A.J., Burkhouse, K.L., McGeary, J.E., Knopik, V.S., Palmer, R.H., & Gibb, B.E. (2016). Eye tracking indices of attentional bias in children of depressed mothers: Polygenic influences help to clarify previous mixed findings. *Development and psychopathology*, *28*(2), 385-397.

Poole, A., & Ball, L.J. (2006). Eye tracking in HCI and usability research. *Encyclopedia of human computer interaction*, *1*, 211-219.

Prasad, S., & Galetta, S.L. (2010). Eye movement abnormalities in multiple sclerosis. *Neurologic clinics*, *28*(3), 641-655.

Preuschoff, K., Marius't Hart, B., & Einhäuser, W. (2011). Pupil dilation signals surprise: Evidence for noradrenaline's role in decision making. *Frontiers in neuroscience*, *5*.

Price, R.B., Siegle, G.J., Silk, J.S., Ladouceur, C.D., McFarland, A., Dahl, R. E., & Ryan, N.D. (2014). Looking under the hood of the dot-probe task: an fMRI study in anxious youth. *Depression and anxiety*, *31*(3), 178-187.

Quinn, P.C., Westerlund, A., & Nelson, C.A. (2006). Neural markers of categorization in 6-month-old infants. *Psychological Science*, *17*(1), 59-66.

Rieger, G., & Savin-Williams, R. C. (2012). The eyes have it: Sex and sexual orientation differences in pupil dilation patterns. *PloS one*, *7*(8), e40256.

Samuels, E.R., & Szabadi, E. (2008). Functional neuroanatomy of the noradrenergic locus coeruleus: its roles in the regulation of arousal and autonomic function part I: principles of functional organisation. *Current neuropharmacology*, *6*(3), 235-253.

Sanchez, A., Vazquez, C., Marker, C., LeMoult, J., & Joormann, J. (2013). Attentional disengagement predicts stress recovery in depression: An eye-tracking study. *Journal of Abnormal Psychology*, *122*(2), 303.

Schag, K., Teufel, M., Junne, F., Preissl, H., Hautzinger, M., Zipfel, S., & Giel, K.E. (2013). Impulsivity in binge eating disorder: food cues elicit increased reward responses and disinhibition. *PLoS One*, *8*(10), e76542.

Schmid, P.C., Mast, M.S., Bombari, D., Mast, F.W., & Lobmaier, J.S. (2011). How mood states affect information processing during facial emotion recognition: an eye tracking study. *Swiss Journal of Psychology*.

Sibert, L.E., & Jacob, R.J. (2000, April). Evaluation of eye gaze interaction. In *Proceedings of the SIGCHI conference on Human Factors in Computing Systems* (pp. 281-288). ACM.

Sirois, S., & Brisson, J. (2014). Pupillometry. *Wiley Interdisciplinary Reviews: Cognitive Science*, *5*(6), 679-692.

Spering, M., & Carrasco, M. (2015). Acting without seeing: eye movements reveal visual processing without awareness. *Trends in neurosciences*, *38*(4), 247-258.

Urakawa, S., Takamoto, K., Ishikawa, A., Ono, T., & Nishijo, H. (2015). Selective medial prefrontal cortex responses during live mutual gaze interactions in human infants: an fNIRS study. *Brain topography*, *28*(5), 691-701.

van der Schaaf, M.E., van Schouwenburg, M.R., Geurts, D.E.M., Schellekens, A.F.A., Buitelaar, J.K., Verkes, R.J., & Cools, R., 2014. Establishing the Dopamine Dependency of Human Striatal Signals during Reward and Punishment Reversal Learning. *Cereb. Cortex* 24, 633– 642. doi:10.1093/cercor/bhs344.

Veneri, G., Federico, A., & Rufa, A. (2014). Evaluating the influence of motor control on selective attention through a stochastic model: the paradigm of motor control dysfunction in cerebellar patient. *BioMed research international*, *2014*.

Vidal, M., Turner, J., Bulling, A., & Gellersen, H. (2012). Wearable eye tracking for mental health monitoring. *Computer Communications*, *35*(11), 1306-1311.

Wadlinger, H.A., & Isaacowitz, D.M. (2008). Looking happy: the experimental manipulation of a positive visual attention bias. *Emotion*, *8*(1), 121.

Wagner, J.B., Hirsch, S.B., Vogel-Farley, V.K., Redcay, E., & Nelson, C.A. (2013). Eye-tracking, autonomic, and electrophysiological correlates of emotional face processing in adolescents with autism spectrum disorder. *Journal of autism and developmental disorders*, *43*(1), 188-199.

Wedel, M., & Pieters, R. (2008). A review of eye-tracking research in marketing. In *Review of marketing research* (pp. 123-147). Emerald Group Publishing Limited.

Westbrook, A., & Braver, T.S. (2016). Dopamine does double duty in motivating cognitive effort. *Neuron*, *89*(4), 695-710.

Wieser, M.J., Pauli, P., Alpers, G.W., & Mühlberger, A. (2009). Is eye to eye contact really threatening and avoided in social anxiety? —An eye-tracking and psychophysiology study. *Journal of anxiety disorders*, *23*(1), 93-103.

Xue, J., Quan, C., Li, C., Yue, J., & Zhang, C. (2017). A crucial temporal accuracy test of combining EEG and Tobii eye tracker. *Medicine*, *96*(13).

Yrttiaho, S., Niehaus, D., Thomas, E., & Leppänen, J.M. (2017). Mothers' pupillary responses to infant facial expressions. *Behavioral and Brain Functions*, *13*(1), 2.

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«INTENTIONAL» STYLISTICS AND «ATTENTIONAL» STYLISTICS IN *ORBIS SENSUALIUM PICTUS* BY JAN AMOS COMENIUS

MIRCEA BREAZ[1]

ABSTRACT. The discursive manner of *Orbis sensualium pictus* is marked by the existence of differences in the referential register which condition the literariness of the book in a transtextual mode, since the literariness of the work – similar to its attentional stylistics – does not pertain to the realm of some "constitutive literariness" (having an institutionalised aesthetic purpose), but rather belongs to a so-called "conditional literariness". The analysis proposed is centered upon the early emergence of certain integral patterns of the literariness of children's literature which configure, in *Orbis sensualium pictus*, typological structures and fictional conventions characteristic to the realm of conditional literariness and attentional stylistics. The events of textual literal aspect exist both "intentionally", and "attentionally" in the receptor's consciousness or attention. The mutation from "intentional" stylistics to "attentional" stylistics redefines the phenomenon of the literariness by relating it to the two main axles in the referential functioning of linguistic signs, regarding the dialectics between the object world and the text world: the denotative axle of the literal exemplification in the syntagmatic plan of the "intentional" aspect (literalness or stylistics of common speech), respectively the axle of the

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stylistic expressiveness, into the paradigmatic plan of the “attentional” aspect (literariness or stylistics of the speech considered literary). Upon such foundations is based the entire research, focusing on *Orbis sensualium pictus* as a comprehensive attempt to involve the lecturer's functional skills at an early school-age. For the references to the English text of J.A. Comenius’s work, we have used Charles Hoole’s translation (C.W. Bardeen, publisher, 1887). All quotations, chapter titles, etc. included hereafter are taken from this edition, and reproduce faithfully the English translator’s choice of words.

Key-Words: intentional stylistics, attentional stylistics, conditional literariness, literalness, literariness, literal exemplification, metaphoric exemplification, lecturer's functional skills

ZUSAMMENFASSUNG. Die diskursive Art von *Orbis sensualium pictus* ist durch das Vorhandensein von Unterschieden im Referenzregister gekennzeichnet, welche die Literalität des Buches in einer transtextuellen Weise konditionieren, da die Literarität des Werkes - ähnlich seiner Aufmerksamkeitsstylik - nicht in den Bereich einer "konstitutiven Literarität" (mit einem institutionalisierten ästhetischen Zweck) gehört, sondern zu eine so genannte "bedingte Literarität". Die vorgeschlagene Analyse konzentriert sich auf das frühe Auftauchen bestimmter integraler Muster der Literarität der Kinderliteratur, die in *Orbis sensualium pictus* typologische Strukturen und fiktionale Konventionen konfigurieren, die charakteristisch für den Bereich der konditionalen Literarität und attentionalen Stilistik sind. Die Ereignisse des textuellen wörtlichen Aspekts existieren sowohl "absichtlich" als auch "aufmerksam" im Bewusstsein oder in der Aufmerksamkeit des Empfängers. Die Mutation von "absichtlicher" Stilistik zu "aufmerksamer" Stilistik definiert das Phänomen der Literalität neu, indem sie sich auf die beiden Hauptachsen

im referentiellen Funktionieren sprachlicher Zeichen bezogen auf die Dialektik zwischen der Objektwelt und der Textwelt bezieht: die denotative Achse der buchstäblichen Veranschaulichung im syntagmatischen Plan des "absichtlichen" Aspekts (Literalität oder Stilistik der gemeinsamen Sprache) bzw. der Achse der stilistischen Ausdruckskraft, in den paradigmatischen Plan des "aufmerksamen" Aspekts (Literalität oder Stilistik der literarisch angesehenen Rede). Auf diesen Grundlagen basiert sich die gesamte Forschung, wobei *Orbis sensualium pictus* als ein umfassender Versuch betrachtet wird, die funktionalen Fähigkeiten des Dozenten in einem frühen Schulalter einzubeziehen. Für die Verweise auf den englischen Text von J. A. Comenius 'Arbeit haben wir die Übersetzung von Charles Hoole verwendet (C. W. Bardeen, Herausgeber, 1887). Alle nachfolgenden Zitate, Kapitelüberschriften usw. stammen aus dieser Ausgabe und geben die Wortwahl des englischen Übersetzers getreu wieder.

Schlüsselwörter: absichtliche Stilistik, aufmerksame Stilistik, konditionelle Literarität, Literalität, Literarisch, buchstäbliche Veranschaulichung, metaphorische Veranschaulichung, funktionale Fähigkeiten des Dozenten

1. "Intentional" stylistics and "attentional" stylistics, preliminary remarks

It is generally accepted that language is governed by two "intentions" (the "transitive" intention and the "reflexive" intention), which remain intimately linked, despite being different and inversely proportional to each other:

> "Considered in its double intention, it can be said that the linguistic fact is at the same time «reflexive» and «transitive». It reflects in itself the person who produces it, and all the people who come to know it are touched by it. An inner hotbed of life radiates in the manifestations of language and a human community receives warmth and light through them. The two intentions of language are in inverse proportion to each other. The more a linguistic manifestation is intended to reach a larger human circle, the higher its «transitive» value, the lower its «reflexive» value, and the reflection of the inner life which has produced it diminishes accordingly" (Vianu, 1966: 11-19).

On the horizontal plane, the *transitive* intention reveals the literal sense of communication in the linear order of the text as a discursive materialization of the object-language. Within this surface order, which usually reflects the common linguistic use, the denotational or differential meanings of the transitive signifier are syntactically updated. On the vertical plane, the *reflexive* intention glosses upon the connotative meanings of the reflexive signifier. Within this deep order, the expressive use of communication is characterized by a significantly higher density and is continually opposed, as a paradigmatic product of the transmitted meanings, to any sum of differential meanings resulting from their simple addition to the linear series of transient signifiers, in other words, within the chain of the syntagmatic disposition of linguistic units.

If the *literal* meanings are textually identifiable within the syntagmatic order of the transitiveness of current communication, the reflexive meanings of the *literary* usage can be revealed expressively both in the actual paradigmatic order of the *text*, namely, at the level of the material content of the real text (in a distinctly present or manifest mode) and in the virtual paradigmatic of the *metatext* of literary creation, in which the factors pertaining to the social and ideological context

complement the parameters of the linguistic context. The interaction between text and metatext takes place on the middle-ground of *intertextual* meaning, where the mental model of the socio-ideological context implied by the text is continuously related to the linguistic context, as the basis of the semantic representations. It is this *intertextual* space that generates and incessantly reconfigures the clues which demonstrate that texts provide an intentional "reading" of history and society, while being read, in their turn, "attentionally", within the consensual horizon of the readers' literary expectations. By this consensual horizon we understand the place of convergence, whether momentarily or more permanently, of a number of *"habitus"*, which, according to Bourdieu (1980: 88-89), represent socially and ideologically acquired "penchants", that is to say, conglomerates of intentional or attentional practices peculiar to the cultural mentalities of various historical periods and artistic ideologies.

The intertextual clues pertaining to these *"habitus"* are the truly genuine indicators of the degree of literariness of any text. That is why discursive linearity is usually determined from the perspective of the phenomena pertaining to the intertextual order. In fact, the very object of the sciences of the text calls for investigating the manifestations of intertextuality, more exactly, of those things which, in the dialectic of *text* (transitive meanings), *metatext* (reflexive or expressive meanings) and *intertext* (intertextual meaning), endow some random discursive conglomerates with the quality of literary texts. The same intertextual dialectic also defines the literariness of children's literature, imposing it as a particular case of an asymmetrical relationship of the real-virtual kind, emerging in the space encompassed between textual continuity or convergence, on the one hand, and metatextual discontinuity or divergence, on the other.

The stylistics of everyday language is founded on the objective aspect of the discursiveness of standard speech and the *transitive intention* of language, while the stylistics of the (presumed) literary works gives precedence to the subjective (i.e. singular or individual) aspect of style and the *reflexive intention* of language, relative to the general distinctive features specific to certain historical ages or periods. As a result, the stylistics of everyday speech is an *intentional stylistics* ("intentional" in the collective or general sense), operating on the literal level, whereas the stylistics of literary language is an *attentional stylistics,* manifested within the expressive realm of subjective discursiveness.

The dominant elements inscribed by the intentional perspective within the *literal* realm of functional communication are represented by (i) native stylistic exemplification and (ii) stylistic pertinence in the respective age, while the dominant elements emplaced by the attentional perspective within the *expressive or reflexive* realm of literary communication are (i) broadening of the capability of expressive exemplification and (ii) versatility of stylistic functionality. The variability of the attentional stylistic expression is indebted to the postulate of subjective expressivity (the irreducible uniqueness of a singular style), the receivers' linguistic consciousness, and their changing stylistic perceptions. Hence, the necessity to relativise the polarisation between the intentional and attentional perspectives, in the analysis of literary discursiveness, since recognising an intentional or attentional stylistics in an author's work varies according to the manner in which the author's cultural project is related to the extra-literary and non-literary metatext of the socio-cultural age in which it has produced its effects:

> "Of course, the easiest thing to do would be to distinguish between two aspects of style: *the intentional aspect*, relatable to the native stylistic exemplification, part of the intentional (but not necessarily consciously programmed) structure of the text and *the attentional aspect*, which can be related to the linguistic exemplification ability that the text acquires along its historical reactualisations. Indeed, considering that the linguistic universe of the author and that of the successive generations of readers do not coincide, stylistic exemplification and expressiveness are subject to change." (Schaeffer, 1996: 125)

Referring to Gérard Genette's contributions to understanding the phenomenon of literariness, Schaeffer provides an ample picture of the dynamic of oppositions between the stylistics of common language usage (the *"intentional"* aspect) and the stylistics of the literary discourse (the *"attentional"* aspect) (Schaeffer, 1996: 119-126). In this sense, aligning himself with these contributions to defining literariness as a compound of factors pertaining to the aesthetic function of expressive language, Schaeffer sums up and clarifies the terms of this contrastive perspective:

> "Despite allowing for the existence of certain intentional stylistic traits, Genette considers that the literary fact pertains, in principle, to *the receiver's attention* – in other words, that literary stylistics is a matter of *attentional,* rather than *intentional, aesthetics*. This does not mean that stylistic facts exist only in the consciousness of the reader: they are discursive properties exemplified by the text, and not every text *exemplifies* the same properties, since not every text *possesses* the same properties as others (Schaeffer, 1996: 125).

The mutations which, in time, affect the relationship between "intentional stylistics" and "attentional stylistics" redefine literariness by being related to the two principal axes which govern the referential

function of the linguistic signs, as concerns the dialectic between the objectual world, on the one hand, and the textual world, on the other: the denotative axis of literal exemplification on the syntagmatic plane of the intentional aspect (the stylistics of everyday speech), respectively, the connotative axis of literary exemplification or expressiveness, on the paradigmatic plane of the attentional aspect (the stylistics of literary discourse).

Understanding style as an expressive variant of the standard literary language, we believe, therefore, that the literariness of children's literature is rooted, primarily, in an "attentional" stylistics, rather than an "intentional" one, given that the general discursiveness of everyday speech manifests itself mainly in terms of "intentional" stylistics, rather than through the data of the "attentional" one.

The discursive manner of *Orbis sensualium pictus (*or *Orbis pictus)* is marked by the existence of differences in the referential register which condition the literariness of the book in a transtextual mode, since the literariness of the work – similar to its attentional stylistics – does not pertain to the realm of some "constitutive literariness" (having an institutionalised aesthetic purpose), but rather belongs to a so-called *"conditional literariness"*, which "includes works belonging to genres *without* an institutionalised aesthetic purpose […], but which, the moment they become the object of an *aesthetic attention*, become part of the literary realm" (Schaeffer, 1996a: 135).

Upon such foundations is based the entire research that follows, focusing on *Orbis pictus* as a comprehensive attempt to involve the lecturer's functional skills at an early school-age.

For the references to the English text of Comenius's work, we have used Charles Hoole's translation (C.W. Bardeen, publisher, 1887). All

quotations, chapter titles, etc. included hereafter are taken from this edition, and reproduce faithfully the English translator's choice of words.

2. From "intentional" stylistics to "attentional" stylistics in *Orbis sensualium pictus* by Jan Amos Comenius

In a belated review occasioned by the publication of the Romanian edition of the *Orbis pictus* encyclopaedia by Jan Amos Comenius (2016), I highlighted the amplitude and audacity of this intellectual endeavour (Breaz, 2017: 127-135), expressing, at the same time, my admiration for this "amor intellectualis" which had not been acknowledged by the volume's editor. I was referring at that time to the reasons for which the book had been considered "a wonderful scholarly feat" (Antonesei, 2016), a genuine cultural monument – both from a linguistic and pedagogical perspective – one aimed at "awakening minds, attracting and sharpening attention and instructing through game-play and in fun" (p. XL (*Introductory study*)]. Hence, the emphasis on the hybrid nature and the multifunctional prevalence of the Czech scholar's work: the first illustrated school encyclopaedia (in the pedagogical sense), the first illustrated children's book (in the philological sense), but also the first school textbook with pictures for children (in the didactic sense), and thus, the first model for the modern school textbooks, following the pedagogical and linguistic order established by the renowned scholar: "If a more perfect description of things, and a fuller knowledge of a language, and a clearer light of the understanding be sought after (as they ought to be) they are to be found somewhere whither there will now be an easy passage by this our little Encyclopædia of things subject to the senses [p. 10-11 (*Preface*)].

The directive manner in which the principal pedagogical and linguistic aim of the book is expressed - the consolidation of young school children's referential function – is based on the five Comenian principles of perceptive "delight", whose finality is to guide children's actions (attitude and conduct), as concerns the development of their faculty of mental representation of the natural world. These principles targeting the development of the capacity to designate can be recognised in the rules of the "cheerful use of this book" [p. 11 (*Preface*)], prescribed by the author in the form of as many commandments of the school that prepares the intellect, the "school intellectual":

> I. "Let it be given to children into their hands to delight themselves withal as they please, with the sight of the pictures, and making them as familiar to themselves as may be, and that even at home before they be put to school."
>
> II. "[...] so that they may see nothing which they know not how to name, and that they can name nothing which they cannot shew."
>
> III. "[...] let the things named them be shewed, not only in the Picture, but also in themselves."
>
> IV. "Let them be suffered also to imitate the Pictures by hand, [...] lastly to practice the nimbleness of the hand, which is good for many things."
>
> V. If anything here mentioned, cannot be presented to the eye, it will be to no purpose at all to offer them by themselves to the scholars; as colours, relishes, &c., which cannot here be pictured out with ink. [p. 11-12 (*Preface*)].

In these prescriptions are anticipated the three modes through which, according to Piaget, the child discovers the surrounding world: 1. The active mode, achieved through practicing, through free manipulation

of objects (corresponding to the actional-objectual stage, in which the child exploits the means of action); 2. The iconic mode, based on images, lacking actual manipulation (corresponding to the stage of thinking in images, which resorts to means of visual representation); 3. The symbolic mode, when symbols replace images, by mediating verbal language or other conventional languages used in communication.

Orbis sensualium pictus/ The sensible world in images contains 150 chapters (titles), accompanied by an *Invitation* (which includes an illustrated alphabet) and a *Close*, in which outstanding is the final call for erudition and faith: "Go on now and read other Books diligently, and thou shalt become learned, wise and godly" [p. 356 (*The Close*). The author's *Preface* sends precisely to this conceptual key to understanding the purpose of the book, which, in its entirety, proves to be a plea for learning and knowledge, for the wisdom to seek, from an early age, the spiritual foundations of life, thus justifying the sapiential meaning of the proverb at the end. Indeed, "If you did not gather in youth, how do you expect to find in old age?" In fact the introductory thesis regarding the foundations of wisdom, plus the conclusion in paremiological key at the end of the preface create a sententious framework which sets apart any discourse on the Comenian method, centred on revelatory observations regarding the interference between verbal language and the visual or imagistic one, in the child's representation of the world.

The titles of the chapters, as intermediate scripto-visual manifestations, are situated, in their turn, at the intersection between the written discourse and the imagistic one, channelling the young school children's reading either along the line of a predominantly *"intentional"* stylistics (in functional, informative discursive patterns), or the principally artistic direction of an *"attentional"* stylistics (in narrative or descriptive discursive patterns). What is pursued in this

fashion is the gradual transformation of controlled reading (a continuous, linear, analytical reading targeting the gathering of information) into a self-controlled reading (a selective, parallel, synthetic or tabular one). To this end, the titles engage, above all, the appellative function (of differentially signalling the thematic order of reading the world) and the referential function, which informs about the actual content of the text that follows. The rhetorical function of the titles is, however, also present, and it aims at gaining the young learner's allegiance, through its enticing way of accomplishing designation, promising a problematising or even critical type of reading.

We return to the prevalence of the book within the realm of children's literature, intent on highlighting its importance for establishing this peculiar type of literariness, namely, *conditional literariness*, which has made it possible for children's literature to be considered both a literature that opens up the path to reading (in its *literal*, non-fictional or functional aspect) and a literature in its own right (in its genuine *literary*, fictional or belletristic aspect). In *Orbis pictus,* this hybrid status can be remarked, primarily, on the level of the complementarity between the linguistic (verbal) code and the iconic (imagistic) code in the process of reading the sensible world. In this sense, we have remarked on a previous occasion (Breaz, 2017: 133) that the *Preface* itself, composed by Comenius, defines the whole book as a "compendium of the entire world and of all of language," rich in *drawings, names* and *descriptions* of things. The drawings represent iconic labels of the visible (concrete) or invisible (abstract) things, the names serve as eloquent titles for the drawings, expressing the whole thing through the corresponding general term, and the descriptions represent explanations of parts of the drawings, occasionally through association with a captivating tale of the medieval kind: "For children, it is enough to read the text in Romanian

and observe the drawings, perhaps by associating them with a captivating tale of the medieval kind. In support of these, we have included, as footnotes, brief explanations for the words we have considered to be lesser known to them" [p. LXIII-LXIV (*Note on the edition*)]. From this perspective, *Orbis pictus* has already been considered "a classic of children's literature" (Buzaşi, 2016: 47), while from the functional perspective of its pedagogical utility, it has been analysed as "the first illustrated manual for children in the history of literature" (Chiciudean, 2016: 17) or has been presented as an "editorial event" of ample cultural resonance (Goia, 2016: 7).

The analysis we propose in what follows is centered, along the theoretical thread delineated in the preliminary notes, upon the early emergence of certain integral patterns of the literariness of children's literature which configure, in *Orbis pictus*, typological structures and fictional conventions characteristic to the realm of *conditional literariness* and *attentional stylistics*.

The logical-argumentative discursive and injunctive patterns of expression are mainly determined by the reign of intentional stylistics, while the narrative and descriptive patterns belong to the structures of attentional stylistics. The discursive contaminations are not excluded either, being naturally resultant from the hybrid nature of conditional literariness. Thus, the narrative patterns sometimes include logical-argumentative elements, whereas the descriptive ones frequently acquire functional details of an injunctive type. On the other hand, the logical-argumentative patterns are not removed from humour and irony, and the genuine detail is not absent from the complex descriptive-injunctive patterns. Two examples of humour and irony can be identified in simple logical-argumentative patterns:

- "The *Cat*, riddeth the House of *Mice*, which also a *Mouse-trap*, doth." (XXV. *Four-Footed Beasts: and First those about the House*);
- "*Shop-keepers*, *Pedlars*, and *Brokers*, would also be called *Merchants*" (CXXVI. *Merchandizing*).

Otherwise, the logical-argumentative patterns are either simple – the cause-effect relation in *The Aspects of the Planets* (CIV), *The Apparitions of the Moon* (CV) or *The Eclipses* (CVI) –, or they imply more complex relations, of a consecutive or conditional type, as in The Tree of Consanguinity (CXIX), or in the manner of modal logic, as in *Measures and Weights* (CXXVII).

Similarly, there are simple injunctive patterns in: *River Fish and Pond Fish* (XXXIV), *Sea-fish, and Shell-fish* (XXXV), *Grasing* (XLVII), *The making of Honey* (XLVIII), *Grinding* (XLIX), *Fishing* (LI), *Butchery* (LIV), while the descriptive-injunctive patterns prove to be extremely complex in: *The Dressing of Gardens* (XLV), *Husbandry* (XLVI), *Bread-baking* (L), *Fowling* (LII), *Hunting* (LIII), *Cookery* (LV), *The Vintage* (LVI), *Brewing* (LVII), *The Dressing of Line* (LIX), *Weaving* (LX), *The Carpenter* (LXIV), *The Mason* (LXV), *Engines* (LXVI).

We have remarked earlier that the revelatory detail can sometimes contradict the discursive recipe of the complex descriptive-injunctive patterns. Thus, from reviewing the human modes of existence we learn that horticulture was man's first labour, which Adam the gardener performed in Paradise (XLV. *The Dressing of Gardens*), just as in old times, "tillage of ground and keeping cattle was […] the care of Kings and Noble-men". A further example is occasioned by the reflection upon the simple beauty of the logic of equilibrium informing the act of measuring. Through direct address, it becomes an occasion to persuade the readers to share the view that there is proper measure in all things:

"The Brasiers balance, weigheth things by hanging them on a Hook, and the Weight, opposite to them […] weigheth just as much as the thing [...]" (CXXVII. *Measures and Weights*).

That is why, on the level of human consciousness, the foundation of prudence lies precisely in maintaining a stable inner balance between appreciating our accomplishments – as they appear to us in the mirror of the past – and the prospect of the expected achievements, as can be seen through the looking-glass of the future.

In their turn, the narrative and descriptive patterns governed by the internal order of attentional stylistics are either simple or complex. A prominent role in their case is played by the educational intention sustained by the moral epithet: thus, the ant is diligent (XXXII. *Crawling-Vermin*) and "the Bee maketh honey, which the Drone, devoureth" (XXV. *Flying Vermin*).

Simple, even summative, are the narrative patterns in: *The Potter* (LXXI), *The Horse-man* (LXXXIV), *Carrying to and fro* (LXXXVI), *Passing over Waters* (LXXXVII), *Swimming* (LXXXVIII), *Writing* (XCII), *Boys Sport* (CXXXVI). In this sense, we remark the discursive order of the presentation of the seven ages of man (XXXVII), evoked upon a summative framework, perfectly articulating the connective variables of progression in consecution.

More complex narrative patterns, potentially capable of generating works belonging to the epic species common in the age, can be found in the narrative kernels that allude to the story of the Genesis and man's banishment from paradise (XXXVI. *Man*), the history of Christianity (CXLVII. *Christianity*), the history of the punishments for wrongdoers (CXXV. *The Tormenting of Malefactors*), the mysteries of the study conducted in voluntary seclusion (XCIX. *The Study*), the sequencing of the medical act, seen as both science and art (CXXVIII. *Physick*), the mystery of marriage

(CXVIII. *Society betwixt Man and Wife*), the simple ritual of the burial (CXXIX. *A Burial*) or the description of the vine (XVIII. *Shrubs*), constructed upon the discursive scaffolding of enigmatic literature.

The complex narrative patterns usually follow the paremiological path of attentional stylistics, especially in the lineage of the aphorisms (proverbs). The aesthetic value of the proverbs was related, in general, to their philosophical value. Thus, the main functions outlined through this interdisciplinary approach are either general functions, such as the axiological function, the gnoseological function, the symbolic function and the aesthetic function, or specific functions, such as the moral function, and the formative or educational function. The values of the human experience have been preserved in valuable imagery expressions, in which the metaphor, the allegory and the symbol intervene in an effective and expressive manner in order to sensitize the idea, enlarging its moral authority and extending its existential meanings:

- "The Tulip is the grace of flowers, but affording no smell." (XV. *Flowers*).
- "Sleep, is the rest of the Senses." (XLII. *The Outward and Inward Senses*).
- "The Soul is the Life of the Body." (XLIII. *The Soul of Man*).
- "The Heaven is full of Stars everywhere." (CIV. *The Celestial Sphere*).
- "Diet and Prayer is the best Physick." (CXXVIII. *Physick*).
- "All men perceive that there is a God, but all men do not rightly know God" (CXLIV. *Religion*)

- "[...] Fewer rather than more, least anything should hinder." (CX. *Prudence*).
- "A diligent Scholar is like Bees, which carry honey from divers Flowers, into their Hive" (CXI. *Diligence*).
- "But the Prodigal, badly spendeth things well, and at the last wanteth." (CXVII. *Liberality*).
- "(*The Liberality*) submits her *wealth* to herself, not herself to it" (CXVII. *Liberality*).

Elsewhere, the paremiological manner takes on the form of the moral example, as shown by the case of the traveller (LXXXIII), which professes the avoidance of untrodden ways and treacherous crossroads, advising *homo viator* not to "forsake the High-road, for a Foot-way, unless it be a beaten Path" (LXXXIII. *The Traveller*).

We discover simple – enumerative, sententious or demonstrative – patterns behind the descriptions in: *Carriages* (LXXXV), *The Booksellers Shop* (XCV), *A Book* (XCVII), the kingdoms of Europe (CVIII), *Paper* (XCII: "That which is to last long is written on *Parchment*"), *A School* (XCVIII: "A *School*, is a Shop in which *Young Wits* are fashion'd to vertue").

The unexpected detail, like humour (even of a macabre sort) often refreshes the enumerations. Thus, the enumeration of "crawling vermin" (earth-worm, caterpillar, grasshopper, moth, pismire / ant, spider, etc.) includes, surprisingly, the book-worm (*blatta librum*), a kind of moth that supposedly bores through books (XXXII. *Crawling-Vermin*). As for macabre humour, we can exemplify it with *The Seven Ages of Man* (XXXVII), where the male human's final age is that of a "decrepid old man", while that of the female is one of a "decrepid old Woman". The superlative formulae

are also sententious or demonstrative: "the best known flowers" (XV), the "birds that haunt the Fields and Woods" (XXII), "the most unpredictable wild beasts" (XXX), "the most effective treatments" (CXXVIII), etc.

The most evident superlative formulae are the quantifying ones:

- "The Nightingal (Philomela) singeth the sweetlyest of all" (XXI. *Singing-Birds*).
- "The *Bird of Paradise* is very rare" (XXII. *Birds that haunt the Fields and Woods*).
- "The *Scate* [is] the most monstrous" (XXXV. *Seah-fish, and Shell-fish*).

On several occasions, the logic of enumeration yields unusual hierarchies, which sometimes allow for playfulness, humour or irony:

- "The party colour'd Parret, the Black-bird, the Stare, with the Mag-pie and the Jay, learn to frame men's words." (XXI. *Singing-Birds*).
- "The Ass and the Mule carry burthens. The Horse (which a *Mane* graceth) carryeth us. The *Camel* carryeth the Merchant with his *Ware*." (XXVIII. *Labouring-Beasts*).
- "A Flea appeareth in a multiplying-glass like a little hog." (LXXX. *Looking-glasses*).

More complex are the descriptions in *A Galley* (LXXXIX), *Printing* (XCIV), *The Soldier* (CXXXIX), especially those referring to the hierarchy of the royal court (CXXXVIII. *Regal Majesty*), *The Celestial Sphere* (CIV), aspects of city life (CXXII. *A City,* CXXIII. *The inward parts of a City*) or

topics related to military camps (CXL) and the strategic organisation of fights and battles (CXLI) or the besieging of cities (CXLIII). The dynamic of the descriptive mode frequently reaches high peaks of evocative virtue, as in this depiction of the deadly wave of mutual annihilation in a naval battle: "A *Sea-fight* is terrible, when huge *Ships,* like *Castles*, run upon one another with their *Beaks* or shatter one another with their *Ordnance*, and so being bored thorow they drink in their own Destruction, and are *sunk.*" (CXLII. *The Sea-Fight*).

Of great complexity are also the chapters in the series *The Head and the Hand* (XXXIX), *The Flesh and Bowels* (XL), *The Chanels and Bones* (XLI), whose logical progression will culminate in the chapters dedicated to *The Outward and Inward Senses* (XLII) and *The Soul of Man* (XLII). The chapter about the senses surprises us not so much for the assumptions regarding the localisation of fantasy and memory, as due to the subtle manner of describing the way in which the two faculties make claim to using the perceptual data provided by common sense: "The *Phantasie*, under the *crown of the head* judgeth of those things, thinketh and dreameth. The *Memory,* under the *hinder part of the head,* layeth up everything and fetcheth them out: it loseth some, and this is *forgetfulness*." (XLII. *The Outward and Inward Senses*).

The complexity of the chapter on the soul of man is also structural, since the demonstration follows the formulation of a thesis regarding the uniqueness of soul, as the life of the body, either in the *vegetative* sense (in the case of the plants), the *sensitive* one (in the case of the animals) or the *rational* one (in the case of humans). In a symmetric fashion, the pre-ordering triadic construction of the theses is followed, in the demonstration, by two other triadic doubles, the order of the conceptual descendancy being, in each case, from *genus proximum* to *differentia specifica*. The first of these refers to the constitutive elements of spiritual

life and the consequences of their functioning: the *Understanding* or the intellect (which makes us recognise good or evil), the *Will* (which makes us "desireth or rejecteth a thing known") and the *Mind* (which "pursueth the Good chosen or avoideth the Evil rejected"). The second double triadic structure is generated by the last of the previous three constituents, for the *Mind* fuels both *Hope* and *Fear* (generating "desire" and "dislike"), *Love* and *Joy* ("in the Fruition"), but also *Anger* and *Grief* (when it comes to "suffering") (XLIII. *The Soul of Man*).

The allegorical descriptions are particularly impressive, as when they capture the mystery of unknown places and of the lives of those who live under the Poles and have days and nights lasting six months. They capture surprising kinetic images, sometimes in an inspired metaphorical dynamic: "Infinite *Islands* float in the *Seas*." (*Terrestrial Sphere: lower hemisphere, CVII-B*). In this category of complex descriptions, the moral epithet gradually opens the path of the fabulous to the imagination, as in a book about fantastic animals, in which "The gay *Peacock* prideth in his *Feathers"* (XIX, *Tame Fowls*), "The tayled *fox,* the craftiest of all", "The *Badger* delighteth in holes" (XXX *Wild-Beasts*), "The *Owl* is the most despicable; The *Whoopoo is the most nasty*" (XXII, *Birds that haunt the Fields and Woods*). There is no shortage in this series of "the watchful *Crane"*, or "the mournful *Turtle"* (XXII. *Birds that haunt the Fields and Woods*), "[t]here are also fish that flie" (XXXIV *Sea-fish, and Shell-fish*), while "[t]he *Dragon*, a winged Serpent, killeth with his Breath [and t]he *Basilisk*, with his Eyes;" (XXXI *Serpents and Creeping things*), or even the monoceros, which may be the rhinoceros but also the unicorn or licorn, considered "a symbol of purity and virginity in medieval legends" (XXVIII). We can also add to these, in the same order of complexity of descriptions, that the parade of the deformed and the monstrous (the giant, the dwarf, the hunchback, the big-headed, the nosy, the thick-lipped, the cross-eyed,

the bald and many others) prefigures the typology of the characters satirised in realistic stories, where the removal of the human body from the common form is frequently associated with malice or vice.

The allegorical mode governs the most complex descriptive patterns, as in the case of water, whose description becomes a means of evoking the ages of man and the mystery of life: "The *Water* springeth out of a *Fountain*, floweth downwards in a *Brook*, runneth in a *Beck*, standeth in a *Pond*, glideth in a Stream, is whirled about in a *Whirl-pit* and causes *Fens* (VII. *The Water*).

Most notable are the descriptive pictures portraying the main moral virtues: *Prudence* (CX), *Diligence* (CXI), *Temperance* (CXII), *Fortitude* (CXIII), *Patience* (CXIV), *Humanity* (CXV), *Justice* (CXVI), *Liberality* (CXVII). Their series opens with the sentencing portrait of *Moral Philosophy* (CIX), an allegorical painting of life itself, represented as a crossword of wise choices, "like *Pythagoras's Letter* Y, broad on the left hand track, narrow on the right; that belongs to *Vice,* this to *Vertue"* (CIX. *Moral Philosophy*).

The attentional structure of the entire descriptive picture is dominated by the directive logic of the serialising of precepts, in its turn, not lacking in metaphorical expression: "Mind, Young Man, imitate *Hercules*: leave the left hand way, turn from Vice; the *Entrance*, is fair, but the *End* is ugly and steep down // Go on the right hand, though it be thorny, no way is inaccessible to Virtue/ Follow whither Virtue leaded through *narrow places* to *stately palaces*, to the *Tower of honour //* Keep the middle and streight *path*, and thou shall go very safe // Take heed thou do not go too much on the right hand // Bridle in, the wild Horse of Affection, lest thou fall down headlong" (CIX. *Moral Philosophy*).

The portrait of *Prudence* allegorically illustrates the choice of the middle path in life, *Diligence* is described in terms of unwavering perseverance, *Temperance* is characterised in terms of moderation,

Fortitude is presented as constant in audacity, simultaneously courageous in danger and trustworthy in favourable situations, *Patience* is distinguished through the wisdom of self-control and trust in the changing destiny, *Humanity* is individualized from the perspective of the virtues of reciprocity which lead to harmony, *Justice* is represented as impartial and unshakeable in determination, and, finally, *Liberality* embodies all the gifts of honour, among which humanism, discernment and the detachment from material values, as "she submits her *wealth* to herself, not herself to it" (CXVII).

The exemplifying detail always has the attentional power of the literary symbol or of the bookish allusion. Thus, the misleading opportunity, which *Prudence* pursues unabatedly, is difficult to grasp, for it slips lightly like the winged creatures possessing a "bushy fore-head and being bald-pated" (CX). Likewise, *Diligence* does not "sing the *Crow's* song, which saith over and over that repeats *Cra(s), Cra(s) (Tomorrow, tomorrow)"*, *Patience* relies on "the *Anchor* of *Hope* (as a *Ship* tossed by waves in the Sea) (CXIV), *Humanity* urges us: "love and so shalt thou be loved" (CXV), *Liberality* shows her "*chearful countenance* and a *winged hand*" (CXVII), and *Fortitude* "receiveth the strokes of *Misfortune* with the *Shield* of *Sufferance:* and keepeth off the *Passions*, the enemies of quietness with the *Sword* of *Valour*." (CXIII). Thus are harnessed the expressive resources of a wide variety of forms, methods and literary techniques consecrated, in time, by the most popular species of the epic or lyric genre: the fable, anecdote, riddle, proverb, saying, apophthegm (maxim, sentence) but also by the parable, psalm, ode, hymn, satire, epigram or meditation.

In the established tradition of the ornate form theory, Comenius's reflections on rhetoric and poetics, as arts of the discourse, validate the deliberately cultivated artistic valences of these manifestations of literariness: "Rhetorick, doth as it were paint, a rude form of Speech with Oratory Flourishes, such as are Figures, Elegancies, Adagies, Apothegms,

Sentences, Similies, Hierogylphicks, &c. // Poetry, gathereth these Flowers of Speech, and tieth them as it were into a little Garland, and so making of Prose a Poem, it maketh several sorts of Verses and Odes, and is therefore crowned with a Laurel." (XCIX. *Arts belonging to Speech*).

From the point of view of the discussion on the relative antithesis between content (*what* we communicate), on the one hand, and expression or form, as style of attentional expression (*how* we communicate), on the other hand, the ornate form theory dissociates content from style, as a result of emphasizing the domain of eloquence, whereas the rhetoric theory of style as meaning in action does not operate this distinction – in other words, it does not clearly dissociate between the substance of the content and the form of the expression, focusing on promoting other aspects of rhetoric such as *invention*, *disposition, memory,* and particularly *action*.

Whereas the ornate form theory is, as a rule, aesthetically defined as an rhetoric art of attentional styles, as expressive syntagmatic varieties of figures of speech, the theory of style as meaning in action is rather acknowledged as a science of language, with the focus on the intentional strength of discourse in an effective form, emerging as a result of the various possible paradigmatic choices between non-synonymical phrases, as figures of thought, centered not on the *envisaged* or *anticipated* persuasive effect, as it is the case with figures of speech, but on the *actually generated* or *real* persuasive effect, at all times adapted to the heterogeneous by definition audience of the educational environment. In this regard, in *Orbis pictus*, the direct style of the intentional verbalization implies, in the most obvious way, the act of reception and of the immediate validation of the common speech universe, which evinces a collaborative approach where the speech actors mutually ratify some presuppositions based on a previous consensus, which is generally tacit, however always active.

3. Conclusions

In conclusion, the study of literary communication specific to the literature for children in the generic framework of linguistic communication, delimited by the relation between the language sciences, pedagogical sciences and fields connected to them, proved to be one of the most profitable methodological ways, taking benefits of the significant tradition of the most important educational factors, guaranteeing the institutionalization of this type of literary communication, and of the most important media of literary reception specific to these canonical institutionalizations, respectively (Spiridon, 1984: 24-28).

As we previously noted (Breaz, 2008: 275-278), the events of textual literal aspect exist both "intentionally", and "attentionally" (in the receptor's consciousness or attention), since, from the perspective of their creation, texts do not share the same characteristics, and from the perspective of the literary perception, texts do not reveal the same properties. Nonetheless, the literary aspect of the literature for children, like literature in general, is defined by "attentional" stylistics rather than "intentional", as long as the general discourse aspect of the common speech, understanding the style as an expressed version of the standard literary language, is defined by "intentional" stylistics, rather than "attentional".

The mutation from "intentional" stylistics to "attentional" stylistics redefines the phenomenon of the literariness by relating it to the two main axles in the referential functioning of linguistic signs, regarding the dialectics between the object world and the text world: the denotative axle of the literal exemplification in the syntagmatic plan of the "intentional" aspect (literalness or stylistics of common speech), respectively the axle

of metaphoric exemplification (of the stylistic expressiveness, respectively), into the paradigmatic plan of the "attentional" aspect (literariness or stylistics of the speech considered literary).

REFERENCES

Antonesei, L. (2016). *O frumoasă ispravă cărturărească*, 21.09.2016; consultat on-line la data de 05.06.2017: *https://antoneseiliviu.wordpress.com/2016/09/21/o-frumoasa-isprava-carturareasca/*

Bourdieu, P. (1980). *Le sens pratique*. Paris: Minuit.

Breaz, M. (2008). Stilistică „intenţională", stilistică „atenţională". Din nou despre literaritatea literaturii pentru copii. In: Bocoş, M.; Chiş, V.; Albulescu, I. & Stan, C. (coord.), *Tradiţii, valori şi perspective în ştiinţele educaţiei*. Cluj-Napoca: Editura Casa Cărţii de Ştiinţă, pp. 275-278.

Breaz, M. (2017). At the beginnings of the children's literature: *Orbis pictus* or about the first illustrated encyclopedia for children in the history of literature. In: *Journal of Romanian Literary Studies – JRLS*, Nr. 11/ 2017. Tîrgu-Mureş: Editura Arhipelag XXI Press, pp. 127-135.

Buzaşi, I. (2016). O carte clasică din literatura pentru copii. In: *Steaua*, Anul LXVII, Nr. 8 (814), August 2016, Cluj-Napoca, pp. 47-48.

Ciortea, M. (2016). Studiu introductiv. In: Comenius, Jan Amos (2016). *Orbis sensualium pictus/ Lumea sensibilă în imagini*. Cluj-Napoca: Editura Argonaut, pp. IX-XLIX.

Comenius, J. A. (2016). *Orbis sensualium pictus/ Lumea sensibilă în imagini*, Bilingual Edition in Latin and Romanian (Ediţie bilingvă latină şi română). Edition supervised, Romanian Translation, introductory study, chronological table, note on the edition and dictionary by Marcela Ciortea. Foreword Eva Mârza. Cluj-Napoca: Editura Argonaut.

Schaeffer, J.-M. (1996). Stilistica. In: *Noul dicţionar enciclopedic al ştiinţelor limbajului*. Bucureşti: Editura Babel, pp. 119-126.

Schaeffer, J.-M. (1996a). Poetica. In: *Noul dicţionar enciclopedic al ştiinţelor limbajului*. Bucureşti: Editura Babel, pp. 127-139.

Spiridon, M. (1984). *Despre* aparenţa *şi* realitatea *literaturii*. Bucureşti: Editura Univers.

Vianu, T. (1966). Dubla intenţie a limbajului şi problema stilului. In: *Arta prozatorilor români*. Bucureşti: Editura Pentru Literatură, pp. 11-19.

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THE ROLE OF STUDENT LEARNING PROFILES IN SUSTAINING FOREIGN LANGUAGE DIFFERENTIATED TEACHING

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ABSTRACT. This paper intended to yield relevant insight into the usefulness of creating student learning profiles in the context of delivering meaningful personalized instruction. In order to point out the applicability of such student learning profiles in differentiated instruction we have chosen the context of English language teaching as part of a Pre-service teacher training course. The quantitative research that has been conducted indicated that a student learning profile could provide the teacher with valuable insight into students' interest, motivation, learning styles and preferred type of intelligence.

***Keywords**:* differentiated learning, student learning profile, content, process, product, learning styles.

ZUSAMMENFASSUNG. ***Die Rolle der Studenten Lernprofile in nachhaltiger Fremdsprache differenzierter Lehren*.** Dieses Dokument soll relevante Einsichten in die Nützlichkeit der Erstellung von

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Lernprofilen für Studenten im Zusammenhang mit dem Erreichen eines sinnvollen individuellen Unterrichts vermitteln. Um die Anwendbarkeit solcher Lernprofile in differenzierter Ausbildung aufzuzeigen, haben wir den Kontext des Englischunterrichts im Rahmen eines Lehrerfortbildungskurses ausgewählt. Die durchgeführte quantitative Forschung weist darauf hin, dass ein Lernprofil für Studenten dem Lehrer wertvolle Einblicke in das Interesse, die Motivation, die Lernstile und die bevorzugte Art der Intelligenz dem Studenten vermitteln könnte.

***Schlüsselwörter**:* differenziertes Lernen, Lernprofil der Studenten, Inhalt, Prozess, Produkt, Lernstile.

I. Introduction

The present paper comprises two parts. The first part includes a theoretical perspective of the multifold relevance of creating student learning profiles in the context of foreign language teaching. Moreover, we illustrate the multitude of factors that can influence the level of attainment of a foreign language. In addition, we provide details about some characteristics of differentiated learning that can be catered for by using a student learning profile. The second part of this paper reports the results of a quantitative research that has been conducted using a questionnaire having a Likert scale format. Students enrolled in the Pre-service teacher training course at the Faculty of Letters in Cluj-Napoca have provided feedback regarding the items that should be included in a student learning profile and the usefulness of creating such a profile in the context of achieving meaningful personalized instruction.

II. Theoretical underpinnings

There is a wide variety of perspectives that enable teachers to better understand how students process information in the classroom and the types of learning styles that students have. Some of the frames that are relevant to the directions presented in this paper make reference to *The Theory of Multiple intelligences* developed by Howard Gardner (1983), the *VAK Model* developed by Neil Fleming and the *Dunn & Dunn Model* developed in the late 60s by Rita Dunn and Ken Dunn.

The *Theory of Multiple intelligences* (Gardner, 1983) suggests that each individual has eight different types of intelligences (logical-mathematical, verbal-linguistic, musical-rhythmic, visual-spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic) some being more visible or practiced than the others. From a pedagogical point of view, this theory acknowledges the fact that, on the one hand, learners have a preferred approach to learning and, on the other hand, that learners should be involved in classroom activities that focus on various types of intelligence in order to expand their comfort zone. Likewise, the ''classroom becomes a space in which students discover their abilities and preferences for a certain activity'' (Petruş 2013, 15).

The *VAK Model* suggested by Neil Fleming claims that learners receive new information through one of the three senses: visual, auditory or kinesthetic'' (Ryan, Cooper, Tauer 2011, 60). The *VAK Model* emphasizes the fact that the teacher has to acknowledge the diversity of preferred senses to be found in the classroom. In addition, the teacher should constantly vary the types of stimulus in order to increase attainment and provide learners with meaningful learning situations.

Rita Dunn's and Ken Dunn's model developed in the late 60s classifies learning styles inventory with regard to the learners' age, abilities and gender (Garnett 2005, 23). The model identifies various ''environmental, emotional, sociological, physiological and psychological factors that affect a person's ability to learn'' (Garnett 2005, 23). From a pedagogical point of view, this model embraces the acceptance that ''everyone has different strengths'' (Garnett 2005, 24) and that ''attainment rises when teaching is matched to preferred learning style'' (Garnett 2005, 24).

The perspectives provided above constitute premises for the development of differentiated learning and favour learning that combines a preferred learning style with a diversity of stimulus that challenge the learner in multiple ways. Therefore, the role of creating student learning profiles is sustained since these profiles contain many of the perspectives presented above. The student learning profile could be considered as a tool that provides professional observation of students' learning styles, learning preferences, cognitive styles, motivation, interests or cultural background. All these pieces of information that can be gathered with the help of a student learning profile enable the teacher to get better acquainted with each student and thus deliver meaningful and effective learning situations.

Differentiated learning

Carol Ann Tomlinson, an expert on differentiated instruction, states that teachers can differentiate three aspects of the curriculum: content, process and product (Ryan, Cooper, Tauer 2011, 63). The *content*

refers to concepts or skills that students have to learn, the *process* refers to activities that help students make sense of the knowledge that was taught and *products* constitute projects that students develop in order to demonstrate what they have learned. Differentiation ''increases students' capacities to grow and learn'' (Ryan, Cooper, Tauer 2011, 63) because teachers give trainings in ways that expand students' expectations about learning, makes them active learners and assessors of the knowledge they have gained. Student learning profiles can become a useful tool in all these three aspects. Likewise, in the content stage, student learning profiles could act as a pre-assessment tool because as Gregory and Chapman state ''planning for individual needs is easier when one knows what a student knows, how the student feels about the topic'' (2002, 37). In the process phase, student learning profiles provide the teacher with valuable information regarding the types of activities that would challenge academically the students and thus cater for ''different avenues to acquiring content'' (Tomlinson 2017, 1). In the product stage, student learning profiles can be filled in with relevant information regarding the students' interest in working for a specific task, their motivation to demonstrate what they have learned or their learning progress.

At its core, differentiated instruction is a thoughtful teaching strategy that seeks to provide learners with diverse learning experiences and not deliver a 'one size fits all' perspective. From a linguistic, cultural or social point of view, students are diverse and ''one size of learning could not possibly fit everyone in the classroom'' (Gregory & Chapman 35, 2002). Therefore, the teacher should invest time to know the learners' preferences and plan teaching activities in such a way as to offer a variety of ways to learn. To design separate learning activities for each student in the classroom is not an achievable goal. Rather than acting

likewise, differentiated instruction proposes a more feasible plan, namely to ''implement a variety of activities that can be approached through a range of learning styles'' (Ryan, Cooper & Tauer 2011, 62). Student learning profiles contain information about each student's learning styles and preferences. Likewise, the teacher becomes more knowledgeable with regards to combining different learning preferences and styles in order to offer each student meaningful learning experiences.

Differentiated learning is a student centered ''philosophy that a teacher embraces to reach the unique needs of every learner'' (Gregory & Chapman 2002, Introduction). Every student in the classroom has his/her own motivation to attend a particular lecture. Therefore, a successful learning experience is one that engages the student in multiple ways and keeps him/her focused on the task. In consequence, in a differentiated learning context, ''teachers monitor the match between the learner and learning and make adjustments as warranted'' (Tomlinson 2017, 10). Thus, student learning profiles could be used to store valuable information about these adjustments.

Student learning profiles

A student learning profile represents a valuable tool for the teacher because it acknowledges the fact that all individuals ''process information differently, and have distinct preferences about where, when, and how'' to learn (Gregory & Chapman 2002, 19). The content, the process and the product stages of differentiation have as common core the need to know one's students and their learning needs. The teacher can plan efficiently each stage if he/she has a sufficient amount

of valuable data regarding his/her students. Heacox (2002, 21) suggests that ''a good way to enhance students' chances for success is to get to know them and to understand how they differ from one another in interests, learning preference and pace, readiness and motivation''. Likewise, the 'get to know' activities that teachers usually perform the first time they meet with their students represent, in fact, opportunities to gather information about one's learners. From this perspective, student learning profiles constitute such 'get to know' tools that can be used throughout the school year.

In view of the theoretical underpinnings and the perspectives presented above, a student learning profile should make reference to factors that are relevant to the complex process of foreign language learning. Therefore, first of all, it should comprise personal information (the student's name, age, grade, school, and contact details). Lightbrown & Spada's (2001, 31-36) research on learner characteristics indicate that the age of the learner is relevant in the field of foreign language learning. Thus, we included in this profile details about the age of the learner. Moreover, because this student learning profile targets a foreign language learning context, details about the student's mother tongue, other known languages or cultural background represent relevant items of information. These can help the teacher identify elements of negative transfer between the mother tongue and the foreign language that is learnt or provide appropriate teaching resources in a multicultural classroom. Secondly, the profile should provide details about the student's learning and cognitive styles and details about preferred types of intelligence because as Marton & Booth (1997 in Sternberg & Zhang 2011, Preface) suggest, ''styles are of interest to educators because they predict academic performance in ways that go beyond abilities''. In addition, a teacher's

responsiveness to styles can, according to Sternberg and Zhang (2011, Preface) improve instruction, assessment and sensitivity to cultural and individual diversity. Thirdly, the student learning profiles should include information about preferred grouping arrangements and about student's skills (reading, listening, speaking, writing, intercultural, digital skills). Some teaching activities are suitable for whole class instruction, others for group or individual learning. The student learning profile should include details about students' preferred interaction patterns conducive to ''support growth for particular students in particular contexts'' (Tomlinson 2017, 29). In order to cover all the targeted skills indicated above, the teacher should prepare a variety of instructional strategies and indicate what skills have been achieved by the students and what areas require further improvement.

In addition, the student learning profile should contain details about the student's interests and motivation because ''interest, curiosity (…) have been shown to promote and sustain higher levels of learning'' (Deci, Vallerand, Pelletier & Ryans 1991 in Chapman & King 2005, 22). The relationship between attitudes and motivation in the context of language learning is intertwined. A motivated learner who has a positive attitude towards the foreign language and culture is expected to become a successful language learner (Gardner, 1985 in Lightbrown & Spada 2001, 33). In addition, Dörney and Ushioda (2009) suggest that increased motivation leads to better learning achievement and a positive attitude towards learning the language. Therefore, details about students' interests and motivation (intrinsic, extrinsic) represent valuable pieces of information that should be included in a student learning profile. Lightbrown and Spada's (2001, 31-36) research on learner characteristics indicate several other factors that affect foreign language learning: intelligence, aptitude,

personality and learner beliefs. This present student learning profile does not make reference to all these factors because it is intended to be a short and easy to handle observation sheet and not a lengthy one that comprises tools to measure intelligence, aptitude or personality.

In our view, the student learning profile could have the layout indicated in Appendix A. The teacher can use this profile in the following ways: check the empty boxes, use the arrow in order to make a mark where the student is positioned and fill in the blanks where needed. The teacher can add other pieces of evidence connected to the student's overall progress: result to tests, portfolios, projects etc.

The pre-service teacher training course

The respondents that volunteered to take part in this study were enrolled in the Pre-service teacher training course. Beginning with the 2st of October 2017 until the 19th of January 2018 students studied the Didactics of the English language. During these 14 weeks students were presented different topics related to teaching English as a foreign language. They were expected to acquire subject matter (content) knowledge, pedagogical knowledge (knowledge of instructional methods), and pedagogical content knowledge that, according to Lee Shulman (1986; 1987) who coined the term, refers to the process of relating teachers' pedagogical knowledge to their subject matter knowledge. The syllabus comprised topics such as: learners' learning characteristics, teachers' roles in the classroom, classroom management, lesson planning, differentiated instruction, teaching grammar and vocabulary, teaching the 4 skills (reading, listening, speaking and writing), teaching English using ICT resources or developing intercultural communicative competence.

III. Research

The details of the research are listed below:

Location: Faculty of Letters, Babeş-Bolyai University, Cluj-Napoca

Span of time: December 2017

Respondents: 3rd year students enrolled in the Pre-service teacher training course, specialization: English minor

Number of respondents: 36

Recruitment: students volunteered to take part in this research after they had been informed about the details of the study.

Research tool

We have used a questionnaire with 15 items that were analysed in a quantitative manner. A copy of the questionnaire can be found in Appendix B. The questionnaire had a Likert scale format. We have chosen the 15 items based on the contents of the student learning profile that can be found in Appendix A. Respondents provided feedback regarding the items that should be included in a student learning profile and the usefulness of creating such a profile in the context of achieving meaningful personalized instruction.

Results

As regards the personal information included in the profile (questions number 1, 2 and 3), 72, 22 % of the students agreed that the student's name should be written in the profile and 66,67% of the students answered that details about the student's age are also relevant.

Still, there was a high standard deviation (1.16) for the second question and 16, 67% of the respondents stated that age should not be included in the student learning portfolio. 27, 78% of the respondents considered that information about the parents' or tutors' email address or telephone number is not needed.

As concerns question number four, 36, 11% of the respondents considered that details about the student's mother tongue were *important* and 33, 33% considered that were *very important*. Still 13, 89% replied that this information is not so important and 16, 67% were uncertain. Quite a large percentage (30, 56%) of respondents were not certain if data about student's knowledge of other languages were relevant or not for a student profile.

Table 1 presents the results obtained for question number 6:

Table 1. Respondents' perspective on including information about learners' cultural background

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
not at all important	1.00	2	5.56	5.56	5.56
less important	2.00	3	8.33	8.33	13.89
neutral	3.00	9	25.00	25.00	38.89
important	4.00	14	38.89	38.89	77.78
very important	5.00	8	22.22	22.22	100.00
Total		36	100.0	100.0	

The results indicated that only 61, 11% of the respondents considered that it was relevant to include in a student learning profile information about learners' cultural background. Learning styles were regarded as valuable information to be included in a learning profile. 80, 56 % of the respondents viewed this detail to be *important* and *very important*.

A high score was obtained for including in the profile information about learners' multiple intelligences. 44, 44 % of the respondents stated that this detail was *important* and 33, 33% of the respondents stated that this detail was *very important*. For question number nine regarding learners' cognitive style, 77, 78% of the respondents agreed that it was *important* and *very important* to include in a profile.

More than 33 respondents (41, 67%) stated that it was *important* to include in the profile information about learners' skills and 50% considered that this piece of information was *very important*. Only 8, 33% of them were uncertain as to include or not this piece of information.

As regards students' preferred interaction patterns, 88, 89% of the respondents were confident that this piece of information should be included in a student learning profile.

High scores have been obtained for including in the profile information about students' motivation and interests. 58. 33% of the respondents considered that details related to students' motivation were *relevant* and 22, 22% that they are *very relevant.*

The prevalence of those who considered that details about students' interest should be included in the profile score 38.89% as *important* and 36.11% as *very important*.

A number of 29 respondents considered that the portfolio should contain information regarding the learner's overall progress. 30,

56% of the respondents considered that it was *important* to include the overall progress in a portfolio and 50.00% stated that it was *very important*.

Table 2 below renders the scores obtained on question number 15.

Table 2. Respondents' opinion related to creating a student learning profile in order to sustain differentiated instruction

Value Label	Value	Frequency	Percent
neutral	3.00	4	11.11
important	4.00	15	41.67
very important	5.00	17	47.22
Total		36	100.0

A number of 32 respondents agreed that a student learning profile could sustain differentiated instruction in multiple ways. Out of this total, 15 respondents (41, 67%) graded the profile's value as being *important* and 17 respondents (47, 22%) rated the profile's value as being *very important*. Only 4 respondents (11. 11%) chose to be neutral.

Discussion and concluding remarks

The findings of our study indicate that respondents evaluate personal information, the details about learning styles and learning preferences (skills or preferred seating arrangements) as being *important* and *very important* to include in a student learning profile. Still, quite a

significant percent of the respondents (16, 67%) stated that information about the students' age should not be included in the student learning portfolio. As indicated in the theoretical part of this study, Lightbrown and Spada (2001, 31-36) argue that age is a relevant factor that affects foreign language learning. If some respondents would not include in the profile details regarding the student's age, at least they should provide information referring to the student's level of English (beginner, intermediate, upper-intermediate etc.). Therefore, we included this option in the student learning profile in Appendix A.

Quite a large percent of the respondents (30, 56%) chose to be neutral as concerns the relevance of integrating in the profile data about student's knowledge of other languages. According to School Education Gateway, nowadays, multilingual classrooms are a reality in EU countries (https://www.schooleducationgateway.eu/en/pub/resources/toolkitsforschools/subarea.cfm?sa=20). Therefore, pre-service teachers should become more aware of the pedagogical implications this reality casts on the foreign language learning course. In addition, only 61, 11% of the respondents would include in the profile details about learners' cultural background. The large percent of neutral (25%) and negative answers (not at all important 5, 56 % and less important 8, 33%) indicate that respondents are not aware that cultural background (i.e. cultural behavior, cultural values, attitudes towards the target language etc.) can influence the learning of a foreign language. According to the Eurydice report, teachers say they have moderate or high levels of needs for Continuing Professional Development in areas such as: teaching in multilingual and multicultural settings or approaches to individualized learning (European Commission 2015, 3-4). Thus, even teachers who already work in this field lack, to some degree, knowledge and practice to deal with multilingual

and multicultural settings or individualized learning. We consider that the development of knowledge, attitudes and abilities to teach in a multilingual and a multicultural setting has a continuous aspect attached to it and is part of a lifelong learning process.

Analysis of TALIS data shows that at EU level, ''teachers feel better prepared for the different aspects of their job if they have completed an Initial Teacher Education programme'' (European Commission 2015, 3). Nonetheless, these teachers felt 'very well prepared' mainly in relation to the 'content' of teaching (subject knowledge) than to its 'pedagogy' (understanding of teaching and learning) and 'practice' (classroom-based training) (European Commission 2015, 3). As concerns the pre-service teachers that took part in our study, we consider that more study time is needed in order cover thoroughly the types of knowledge indicated above. An increase in the amount of practical training would allow these students to put in practice the subject knowledge they have already acquired.

The last question of the questionnaire required respondents to evaluate the role of student learning profiles in sustaining foreign language differentiated learning. The score obtained (88, 89% of the respondents rated the profile as being *important* or *very important*) indicates that respondents have understood that differentiated learning begins with knowing one's students. A student learning profile of the type we have indicated in Appendix A could provide the teacher with valuable insight into students' interest, motivation, learning styles and preferred type of intelligence.

Appendix A

STUDENT LEARNING PROFILE

<table>
<tr><th colspan="4">Personal information</th></tr>
<tr><td colspan="2">Student's name:</td><td>Age/ Level of English</td><td>Parents'/Tutor's email address:</td></tr>
<tr><td colspan="2">Mother tongue:
Other known languages:
Cultural background:</td><td></td><td>Parents'/Tutor's telephone number:</td></tr>
<tr><th colspan="4">Learning style</th></tr>
<tr><td>Visual
Less ⟷ More</td><td colspan="2">Auditory
Less ⟷ More</td><td>Kinesthetic
Less ⟷ More</td></tr>
<tr><th colspan="4">Learning profile</th></tr>
<tr><td>Multiple intelligences</td><td colspan="2">☐ Verbal-linguistic
☐ Logical-mathematical
☐ Visual/Spatial
☐ Bodily/ Kinesthetic
☐ Musical/Rhythmic</td><td>☐ Naturalist
☐ Existential
☐ Intrapersonal
☐ Interpersonal</td></tr>
<tr><td>Preferred grouping arrangement</td><td colspan="2">☐ Individual work
☐ Whole classroom</td><td>☐ Group work
☐ Pair work</td></tr>
<tr><td>Skills</td><td>☐ Reading skills
☐ Listening skills
☐ Speaking skills
☐ Writing skills
☐ Intercultural skills
☐ Digital skills</td><td colspan="2">Comments/ Areas that require improvement:</td></tr>
</table>

Cognitive styles	Analytic ⟷ Global Reflective ⟷ Impulsive Field dependent ⟷ Field independent	
Students' interests and motivation		
Evidence of interest for the school subject		Interests outside classroom
Evidence of intrinsic motivation		Evidence of extrinsic motivation
Student's overall progress		
Comments:		

Appendix B

Questionnaire
The role of creating *Student Learning Profiles*

The questionnaire was created to measure your opinion about the content of a S***tudent Learning Profile (SLP)*****.** Based on your own preferences, please rate the following statements. Circle your answer:

1. The ***SLP*** should include information about the student's name	not at all important	less important	neutral	important	very important
	1	2	3	4	5
2. The ***SLP*** should include information about the student's age/level of English	not at all important	less important	neutral	important	very important
	1	2	3	4	5
3. The ***SLP*** should include information about the tutor's/ parents' email and telephone number	not at all important	less important	neutral	important	very important
	1	2	3	4	5
4. The ***SLP*** should include information about the student's mother tongue	not at all important	less important	neutral	important	very important
	1	2	3	4	5
5. The ***SLP*** should include information about the student's knowledge of other languages	not at all important	less important	neutral	important	very important
	1	2	3	4	5

6. The ***SLP*** should include information about the student's cultural background	not at all important	less important	neutral	important	very important
	1	2	3	4	5
7. The ***SLP*** should include information about the student's learning styles (*VAK*)	not at all important	less important	neutral	important	very important
	1	2	3	4	5
8. The ***SLP*** should include information about the student's multiple intelligences	not at all important	less important	neutral	important	very important
	1	2	3	4	5
9. The ***SLP*** should include information about the student's cognitive styles	not at all important	less important	neutral	important	very important
	1	2	3	4	5
10. The ***SLP*** should include information about the 4 skills	not at all important	less important	neutral	important	very important
	1	2	3	4	5
11. The ***SLP*** should include information about the student's prefered interaction patters	not at all important	less important	neutral	important	very important
	1	2	3	4	5
12. The ***SLP*** should include information about the student's motivation	not at all important	less important	neutral	important	very important
	1	2	3	4	5

13. The ***SLP*** should include information about the student's interests	not at all important	less important	neutral	important	very important
	1	2	3	4	5
14. The ***SLP*** should include information about the student's overall progress	not at all important	less important	neutral	important	very important
	1	2	3	4	5
15. It is useful to design a Student Learning Profile in order to sustain differentiated instruction?	not at all important	less important	neutral	important	very important
	1	2	3	4	5

REFERENCES

Chapman, C., King, R., (2005). Differentiated Assessment Strategies: One Tool Doesn't Fit All. UK, USA, India: Corwin Press Inc.

Dörnyei, Z., Ushioda, E. (2009). Motivation, language identity and the L2 self. Multilingual Matters: Bristol.

European Commission, *Strengthening teaching in Europe: New evidence from teachers compiled by Eurydice and CRELL*, June 2015, Office for Official Publications of the European Communities, Luxembourg, 2015.

Gardner, H. (1983). Frames of Mind: The Theory of Multiple Intelligences. USA: Basic Books.

Garnett, S., (2005). Using Brainpower in the Classroom: Five Steps to Accelerate Learning. USA, Canada: Routledge.

Gregory, G.H., Chapman, C. (2002). Differentiated Instructional Strategies. One Size Doesn't Fit All. California, London, New Delhi: Corwin Press Inc.

Heacox, D. (2002). Differentiating Instruction in the Regular Classroom. How to Reach and Teach all Learners, grades 3-12. USA: Free Spirit Publishing Inc.

Lightbrown, P.M., Spada, N. (2001). *Factors Affecting Second Language Learning.* In Candlin C., Mercer N., English Language Teaching in Its Social Context: A Reader (pp 28-43). London, New York: Routledge.

Petruş, R. (2013). A reader – The Didactics of the English Language (Ghid de bune practici - Didactica limbii engleze). Bucureşti: Editura Matrix Rom.

Ryan, K., Cooper, J., Tauer, S. (2011). Teaching for Student Learning: Becoming a Master Teacher. USA, UK, Australia: Wadsworth Cengage Learning.

Shulman, L.S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57, 1-22.

Shulman, L.S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15, 4-14.

Sternberg, R.J., Zhang, L. (2011). Perspectives on Thinking, Learning, and Cognitive Styles. New York: Routledge.

Tomlinson, C.A. (2017). How to Differentiate Instruction in Academically Diverse Classrooms, Third edition. USA: ASCD.

Websites:

https://www.schooleducationgateway.eu/en/pub/resources/toolkitsforschools/subarea.cfm?sa=20

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THE STUDENT-CENTERED LEARNING MODEL IN JOHN DEWEY'S PROGRESSIVE CONCEPTION

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ABSTRACT. The educational model proposed by John Dewey brings the student in the center of the pedagogical act and promotes an approach that emphasizes on the motivational structure of the student's personality, on his/her interests and skills, those being considered as important variables in the educational process. In this respect, an educational approach able to harness and maximize the students' natural potential is claimed by the actual educational system, mostly when proposing to implement student-centered learning at all the levels, as its main objective. So, taking into account that the student-centered learning starting practically with a change in the teachers' current practice, it comes the question: under what conditions this model can be really applied in practice?

Keywords: student-centered learning, contemporary school, educational model, experience, John Dewey

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ZUSAMMENFASSUNG. Das von John Dewey vorgeschlagene Bildungsmodell stellt den Schüler in den Mittelpunkt des pädagogischen Handelns und fördert einen Ansatz, der sich auf die motivationale Struktur der Persönlichkeit des Schülers, seiner Interessen und Fähigkeiten konzentriert, die als wichtige Variable im Bildungsprozess gelten. In diesem Zusammenhang ist ein Bildungsansatz erforderlich, der in der Lage ist, das natürliche Potenzial der Schüler zu nutzen und zu maximieren, vor allem, wenn wir studierendenzentrierten Lernstrategie auf allen Ebenen als Hauptziel implementieren mögen. Da es sich bei dem lernerzentrierten Lernen jedoch im Grunde um eine Veränderung der derzeitigen Lehrerpraxis handelt, versucht d dieser Artikel die folgende Frage zu beantworten: Unter welchen Bedingungen kann dieses Modell tatsächlich in der Praxis genutzt werden?

Schlüsselwörter: Schülerzentriertes Lernen, zeitgenössische Schule, pädagogisches Modell, Erfahrung, John Dewey

I. Introduction

Nowadays children - the generation developed under the influence of technological factors, with very early habits related to information literacy, who communicate and define on-line friendships more easily than in the past, having unlimited access to knowledge in any field -, represented another type of challenge for their parents and teachers who were trained with other values in a former environment influenced by other factors. The psychologists noticed that the nowadays children are evolving and developing in a faster pace, clearly determined by specific environments and situations, gathering easily their competences and skills in the field of technology, facing with problems needed to be

rapidly solved, mostly related to the control and management of emotions, relationship and socialization. In this respect, the big challenge is addressed to teachers, who need to identify and apply the best didactic methods suited to each student's personality, during the educational process.

Education represents a complex process that starts from the moment of birth, being linked to the whole existence of each individual. Throughout the life, a person learns and evolves, develops competences and skills in particular directions, in many cases in accordance to the demands addressed by the environment in which the person has to deal with. Under those circumstances, when very rapid societal mutations take place, education must form the future skills in order to help the individual to be adapted effectively, to be able to reorient towards another field or to change the basic activity if required, to find optimal motivation and self-control in certain difficult situations, to know very well how to make proper physical, mental or intellectual effort, fully exploited the own potential. Moreover, education is a dynamic process, it generates changes, progress, evolution and, in turn, it must be adapted to the exigencies and needs of the society. Education must release the creative force of individuals, so that they can contribute to the development of the society.

II. The centrality of the educational process

Over the time, there have been many pedagogical trends, influenced by political, economic and cultural conditions, but also by paradigms and educational policies active at specific moments, which placed the teacher or

the student in the heart of the educational act, referring differently to each individual educational actor.

The period of traditional didactics (from the 17th century to the 19th century) was dominated by the *magistro-centrism* vision (Cristea, 1998), where the teacher's importance was emphasized in the didactic approach, being effectively centered on teaching. The main source of knowledge was the perception and the educators were the ones who designed and carried out the formative activities, the trainees' tasks being to reproduce the received pedagogical message (Cristea, 2008).

The period of *modern* didactics (from the end of the 19th century to the first half of the 20th century) had specific *psycho-centrism* features, a pedagogical current that places the student in the center of the educational act, and its psychological potential, to which absolute freedom must be given. The psycho-centrism defines the education starting from the recognition of the importance of the trained student and individualizing the training in this respect (Cristea, 2008). The representatives of this period (as John Dewey, Maria Montessori, Edouard Claparède, Ovide Decroly) promoted a new conception, opposite to the traditional school, where the education had the student in the heart of all actions and approaches, for the educator being given another role, as partner in the teaching demarche. The needs and the interests of the students became primordial, and not the imposed and rigid learning contents. This paradigm was followed by the *socio-centric* and *techno-centric* ones, which are specific to the period of *post-modern didactics* (starting with the second half of the 20th century). At present, student-centered teaching targets to raise the satisfaction of the student in relation to his/her learning experience, trying to make the student to deeply understand how the acquired knowledge can be valued in his/her own life (Nilson, 2016; Weimer, 2013).

III. Student-centered learning - a basic pedagogical principle in John Dewey's progressive conception

John Dewey's didactical conception derives from his philosophical vision - the *pragmatism* - and emphasizes on certain principles, innovative at those times, in the American pedagogy and beyond. Dewey's thinking represents a turning point in the history of pedagogy: on the epistemological level, it is detached from empiricism, and on the psychological level, it proposes an articulation of the naturalistic point of view with a sociological perspective (Crahay, 2009, p. 82). For Dewey, the human is in a relationship of continuity with the environment, and the act of acquiring the knowledge is essential in the process where the human being builds his own experience of the social and physical world (Crahay, 2009, p. 83). The knowledge is generated by action (*learning by doing*) and occurs after repeated attempts made by the individual, to solve problems - *learning is based on experience*. The student is the center of the teaching process, and education has to meet the student's natural needs. The role of the educator is to place the students in contexts that require the students to call their problem-solving skills. Such approaches have beneficial effects on students, developing thinking skills close to scientific research, and solve *ipso facto* the difficult problem related to students' interests (Crahay, 2009, p. 85). Dewey's formula ("*Learning by doing*") can define the advisable method at school age, with the condition to mention its sense and its range of action. A good school education is therefore what makes the student to participate in the process of acquiring knowledge through activities and personal studies that favor its initiatives and ways of expression, instead of imposing his or her immobile attitude, as a participant more or less passive (Debesse, 1981, p. 66).

Dewey considered that "*the only true education comes from stimulating the student's capacities under the pressure of social situations in which he/she is set up. In this sense, he/she is determined to act as a member of a unit, to broaden its field, initially restricted to its actions and feelings, and to think on himself/herself from the point of view of the welfare of the group to which he/she belongs. Through the reactions that their own activities cause to others, he/she gets to understand what it means in social terms (...)*" (Dewey, 1897, apud Crahay, 2009, p. 92). For Dewey, the education has two sides: one *psychological* and one *social*, but the psychological dimension is more important due to the fact that the student's instincts and abilities provide the material and the starting point in education. But the child (the future adult) is also a member of the society, so that the education must have a clear social valence.

In his work - *The Child and the Curriculum* (1902) - John Dewey develops the idea of *student-centered curriculum*, namely the organization of learning experiences and educational values, which are relevant to everyday activity as daily experiences. He proposes that, under the umbrella of the curriculum concept, not only the information should be found, but also the didactical approaches needed to its assimilation. This means that in the heart of all educational activities and actions, must stay the needs, interests and aspirations of the student, the learning of certain disciplines being supported only to the extent that their particular contents respect the condition of applicability, practical value and satisfaction strongly related to the intrinsic needs of the student. In this process, the educator has the task of organizing the learning opportunities.

Dewey argues that "*the interests are the signs and symptoms of developing of a capacity; they represent the capacities of becoming (...)*"

(Dewey, 1897, apud Crahay, 2009, p. 94), so the student must be given the opportunity to study elements of his or her sphere of interest that support his / her intrinsic motivation and contributing to the enrichment of its experience.

The student-centered learning requires effort from the teacher's part, but effectively exploits the student's individual potential, develops critical thinking, emphasizing on the understanding / applying the knowledge, enhancing an active and exploratory learning, inciting to research and leading to collaborative learning. The student becomes the subject of the educational process, which contributes to the responsible assumption of learning outcomes, to the development of independence in learning, to the formation of self-learning and lifelong learning skills, to the development of creativity and teamwork skills, motivation and intellectual curiosity.

In this context, the teacher performs a multitude of roles: guide, coach, coordinator, team-mate, consultant, instructor, trainer, collaborator, facilitator - he/she places himself/herself in relation to the student, as learning partner. He/she does not provide answers, but creates situations from which the students discover solutions to problems, do not criticize and discourage, but motivate, stimulate the curiosity, direct students on the way of getting the knowledge and give to students the freedom and satisfaction to discover themselves.

In a strong relation with Dewey's theory, it can be projected a learning frame, that situate both the teacher and student in a connection governed by the student-learning center process (figure 1).

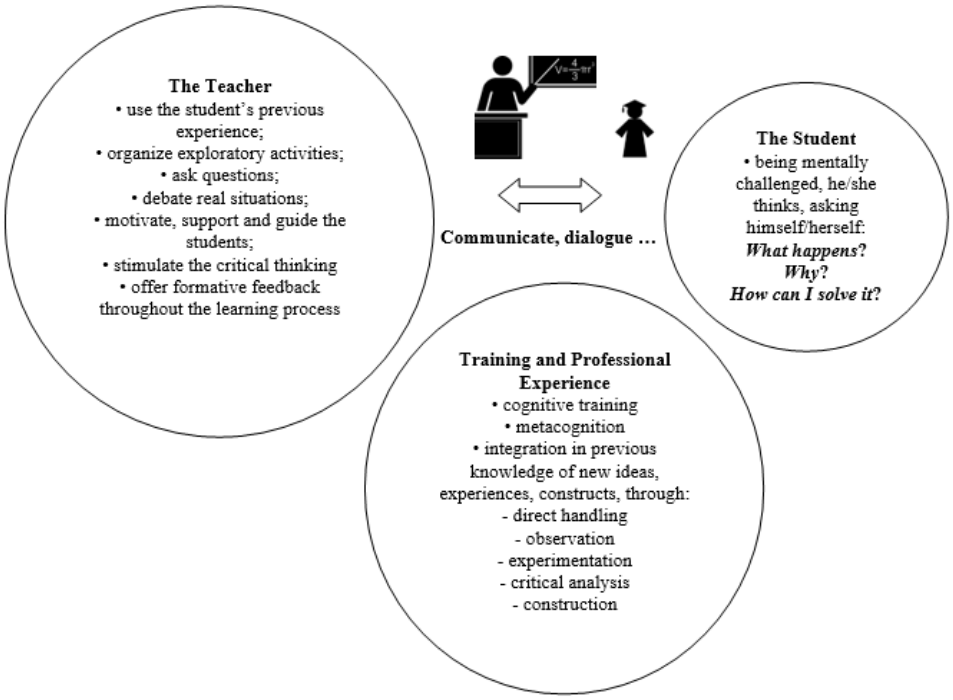

Fig. 1. The teacher and the student from the perspective of student-centered learning

IV. Conclusions

Student-centered learning represents a model that brings the student in the middle of the learning process - the teacher offers students a series of opportunities to learn independently and in collaboration, by mediating the process in the direction of acquiring the skills students need. The students thus have the possibility to influence the content, activities, materials, and pace of learning. In addition, the priority of the experience over theory is powerfully represented, as underlined in John

Dewey's pragmatist philosophy, when learning is strongly influenced by thinking and reasoning, by tackling real problems which arise in real experiences: "*... progress (in education) is not in the succession of studies but in the development of new attitudes towards, and new interests in, experience.* (...) *Education must be conceived as a continuing reconstruction of experience; the process and the goal of education are one and the same thing*." (*Flanagan, 1994*).

As a direction affirmed by the *Psychology of Education*, the centering of the learning on student targets to: a) effective participation of students on building their own knowledge; b) objective self-evaluation of the learning results; c) learning by cooperation in groups; d) raising of intrinsic motivation for authentic learning; d) improving the teacher's activity by assuming of new roles (mentor, facilitator, mediator, counselor, manager etc.). However, the unconditional assumption of the student-centered learning paradigm, propagated from an exclusively psychological perspective, without any significant effort of pedagogical mediation, necessary for its transformation into a viable didactic model, achievable in a normative sense (teleological and valuable) and a prescriptive direction (methodological, docimological, managerial), may lead to a negative influence on the school life, on building the school programs, but also on the didactic and extra-didactic teachers' behavior (Cristea, 2015).

Dewey's theory and his didactic philosophy overlap largely over the defining elements of the nowadays society and actual education - its timeliness being very actual -, and his work seeming to describe the educational process with its realities and challenges, more than a century apart. Dewey believed, as we also conclude now, that education is the only one which can save a nation: "*I think education is the fundamental method of social progress and society reformation ...*" (Dewey, 1897, apud Crahay, 2009, p. 94).

REFERENCES

Crahay, M. (2009). *Psihologia educaţiei*. Bucureşti: Trei Publishing House.

Cristea, S. (1998). *Dicţionar de termeni pedagogici*. Bucureşti: Didactică şi Pedagogică Publishing House.

Cristea, S. (2008). *Curriculum pedagogic*, vol. I, ed. a II-a. Bucureşti: Didactică şi Pedagogică Publishing House.

Cristea, S. (2015). Centrarea învăţării pe elev. De la teoria psihologică la realitatea şcolii. *Tribuna învăţământului* (on-line publication), 16.03.2015.

Debesse, M. (1981). *Etapele educaţiei*. Bucureşti: Didactică şi Pedagogică Publishing House.

Dewey, J. (1977). *Trei scrieri despre educaţie*. Bucureşti: Didactică şi Pedagogică Publishing House.

Dewey, J. (1992). *Fundamente pentru o ştiinţă a educaţiei*. Bucureşti: Didactică şi Pedagogică Publishing House.

Flanagan, FM. (1994). John Dewey. Paper presented in Programme 7 of "*The Great Educators*", First Series, broadcast on May 9, 1994, RTE, Radio 1. Retrieved in November 2017, from: *http://www.minerva.mic.ul.ie/vol1/dewey.html*

Nilson, L. (2016). *Teaching at Its Best: A Research-Based Resource for College Instructors, 4th Edition*. Wiley.com

Weimer, M. (2013). *Learner-centered Teaching: Five Key Changes to Practice*. San Francisco, CA: John Wiley & Sons.