Pre-service teachers' reader profiles: stability and change throughout teacher education

Vansteelandt, I.; Mol, S.E.; Keer, H. van

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Iris Vansteelandt [ID]

Department of Education and Training, Artesis Plantijn University College, Antwerpen, Belgium and Department of Educational Studies, Faculty of Psychology and Educational Sciences, Research Group Language, Learning, Innovation, Ghent University, Ghent, Belgium

Suzanne E. Mol

Department of Learning and Behavior Problems in Education: Challenges and Solutions, Institute of Education and Child Studies, Faculty of Social and Behavioral Sciences, Leiden University, Leiden, The Netherlands

Hilde Van Keer

Department of Educational Studies, Faculty of Psychology and Educational Sciences, Research Group Language, Learning, Innovation, Ghent University, Ghent, Belgium

Background: Considering (1) that reading proficiency is fundamental for educational success, (2) the reciprocal relationship between affective aspects of reading (e.g., reading attitude and motivation) and reading behaviour and ability, (3) the alarming decline in students' reading attitude throughout primary and secondary education and (4) the rather large group of pre-service teachers starting teacher education with a negative reading attitude, this study used a person-centred approach to examine the development of pre-service teachers' reading attitude throughout teacher education and how it relates to their perceived reading ability and reading behaviour.
Methods: In a sample of 128 pre-service teachers, cluster (movement) analysis was executed at the start of teacher education and near graduation to identify different reading attitude clusters and possible changes throughout teacher education. A distinction between purpose (recreational vs academic) and context (personally vs socially oriented) was made when assessing reading attitude components.
Results: Three reading attitude profiles (i.e., personally oriented, socially oriented and low attitude) were corroborated at both measurement occasions. Cluster movement analysis identified that the majority remained in the same profile over time (53–62%). When pre-service teachers did switch profile, they most likely evolved towards the personally- or socially-oriented profile (reading as a mere personal activity vs willing to interact about reading, respectively). Convergent validity evidence was found in that pre-service teachers in the low-attitude profile (24%) were least likely to read and perceived themselves as least competent in reading. They further appeared to be least willing to invest in reading promotion in their future school(s) of all profiles.

Conclusions: It may be worrisome that about one fourth of the pre-service teachers in this sample enters the profession with a rather negative reading attitude. Encouragingly, the majority of pre-service teachers either retained or increased their positive reading attitude throughout teacher education.

Keywords: reading attitude, teacher education, person-centred longitudinal approach

Highlights

What is already known about this topic

- Differences in reading attitude are related to differences in reading behaviour and perceived reading ability.
- There is a declining trend in primary and secondary school students' reading attitude, starting at the end of primary school.
- Nearly half of all pre-service teachers start teacher education with a negative reading attitude.

What this paper adds

- Person-centred movement analysis provided a basis to map the stability and change of pre-service teachers' reading attitude profiles' throughout teacher education.
- Pre-service teachers' reading attitude remains rather stable throughout teacher education and is related to reading behaviour and perceived reading ability.
- Almost one fourth of the pre-service teachers graduate with a quite negative reading attitude.

Implications for theory, policy or practice

- The urgency to address reading attitude more adequately in teacher education and to attend more closely to pre-service teachers' individual differences in reading attitude.
- The importance of using a longitudinal approach to gain insight into reading attitude development throughout teacher education and preferably also during the first crucial years in the profession.
- This longitudinal study could be a possible step in the process of (re)designing teacher education programs and continuing professional development trajectories in relation to reading attitude.

Proficiency in reading can be considered fundamental for both educational and societal success (Sullivan & Brown 2013). The multidimensionality of this core skill received attention in both educational practice and reading research (Afflerbach et al., 2013). It seems well-accepted that reading comprises not only cognitive aspects, such as strategies for decoding and comprehending texts (e.g., Concannon-Gibney & Murphy 2012; Okkinga et al., 2018), but also affective aspects, such as reading attitude and motivation (e.g., Jang & Ryoo 2019; McGeown et al., 2015; Toste et al., 2020). Studies pointed to the strong relationship between both cognitive and motivational aspects of reading, relating for example a positive attitude to higher ability (e.g., Bokhorst-Heng & Pereira 2008; Petscher 2010).

It is worrisome that students' reading attitude decreases throughout primary and secondary school (McKenna et al., 2012; Smith et al., 2012). Another concern is that the scant amount of studies focusing on pre-service teachers' affective aspects of reading revealed that a large group of pre-service teachers start teacher education with a rather negative reading attitude (Applegate et al., 2014; Applegate & Applegate 2004; Nathanson et al., 2008; Vansteelandt et al., 2017). Teacher dispositions, such as attitudes, motivation and sense of efficacy are, however, of importance for teacher behaviour in class and students' outcomes (George et al., 2018; Guay et al., 2016). Teachers competent in teaching and promoting reading are more than ever needed if we aim to positively impact primary and secondary school students' willingness to read and improve their reading ability (Blömeke et al., 2015; Kozak & Martin-Chang 2019). It is not yet known, however, to what extent pre-service teachers' reading attitude remains stable or changes throughout teacher education and consequently, with which reading attitude they enter the profession as beginning teachers. More insight into this development could be a first step in the process of (re)designing teacher education programs and continuous professional development trajectories. In the present 3-year longitudinal study, a person-centred approach is applied to examine pre-service teachers' reading attitude development from the first semester in teacher education to near graduation. The relation between their attitude profile, reading behaviour, perceived reading ability and willingness to invest in reading promotion in future school(s) is also examined.

The multidimensionality of reading

Most research thus far seems to predominantly focus on cognitive reading aspects. In the last decades, however, a reasonable uplift can be noticed in studies focusing on affective aspects and on the relation between both (e.g., Petscher 2010; Retelsdorf et al., 2011; Barber & Klauda 2020; Toste et al., 2020). A growing body of studies, mostly on primary and secondary education students, points to the reciprocal relationship between cognitive and motivational aspects, often mediated by reading behaviour (Becker et al., 2010; Schiefele et al., 2012; Stutz et al., 2016). The reciprocal model of causation (Stanovich 1986), for example, integrates both aspects, in that students who perceive themselves as better readers are expected to read more frequently, to become better readers and to like reading more, and hence, to be more motivated to continue reading for pleasure. Consequently, the decline in students' affective aspects of reading (Chall & Jacobs 2003; Smith et al., 2012) can be considered alarming for their educational and societal success.

Reading attitude, which is an important affective reading aspect (Jang & Ryoo 2019; Scholes 2019), is primarily associated with the feelings one has towards reading (Conradi et al., 2014). Some theorists, however, approach reading attitude from a tripartite perspective, emphasising not only feelings but also beliefs and behavioural intentions towards reading (Cheema 2018; Mathewson 1994). Building on this latter component, some theorists noted that reading attitude is related to reading motivation (Petscher 2010; Schiefele et al., 2012). They, however, consider reading attitude not equal to reading motivation, but more as a factor affecting reading motivation (Conradi et al., 2014). The present study specifically focuses on affective and conative components of reading attitude. The affective component reflects the prevailing feelings about reading, whereas the conative component reflects the behavioural intention or action readiness to read (Manstead 1996; Mathewson 1994).

It is recommended to further differentiate reading attitude by purpose and context. As to purpose, it is common to distinguish between academic and recreational reading attitude (Jang & Ryoo 2019; McKenna et al., 2012). As to context, it is worthwhile to differentiate between individually- and socially-oriented reading (Ng & Graham 2018). Even though reading may be mainly viewed as an individual or personal activity, teaching, on the other hand, is by definition a social activity and teachers' role particularly is a social one (Jhang 2014; Neugebauer & Fujimoto 2018). Importantly, providing opportunities to engage in social interactions about what students are reading is one of the evidence-based classroom practices considered critical for supporting students' reading enthusiasm (Brozo & Flynt 2008; Gambrell 2015; Ivey 2014; Neugebauer & Gilmour 2019). Previous research focusing on first-year pre-service teachers' reader profiles already pointed to the existence of personally- and socially -oriented profiles, both displaying high affective and personal-conative attitudes, and the socially- oriented profiles also showing high social-conative attitudes in academic and recreational reading (Vansteelandt et al., 2017).

Development of reading attitude in pre-service teachers

Focusing on pre-service teachers' development in reading attitude is particularly relevant, because young adults appear to be most susceptible to attitude change (Maio & Haddock 2015; Visser & Krosnick 1998) and their attitude towards reading still seems to be malleable (Cardarelli 1992). More research focusing on teachers' affective aspects of reading in relation to their reading behaviour and (perceived) reading ability is needed, however. From investigations thus far, about 50% of pre-service teachers could be categorised as unenthusiastic readers (Applegate et al., 2014; Applegate & Applegate 2004; Nathanson et al., 2008). Almost 40% seem to have a relatively negative reading attitude, they hardly read for pleasure, and perceive themselves as less competent readers than pre-service teachers with a more positive attitude (Vansteelandt et al., 2017). These prior studies, however, only assessed pre-service teachers' reading experiences at one point in time (i.e., first half of teacher education). The current study adds to this by applying a two-wave longitudinal design to examine pre-service teachers' attitude profiles in the first and final year in teacher education.

Furthermore, the majority of the prior studies applied a variable-centred approach, examining associations between different variables. The present study uses a person-oriented approach, examining individual differences in these associations (Bergman et al., 2003; Laursen & Hoff 2006). With such an approach, it is also possible to examine whether persons switch profiles over time. This may yield a better understanding of the possible impact of teacher education on pre-service teachers' reading attitude. Results will show whether participants who graduate low in reading attitude were most likely to enrol in teacher education with a more negative reading attitude or showed a decrease in their attitude during the programme. As it can be regarded as one of the transversal aims of teacher education programmes to enhance pre-service teachers' competence in reading (i.e., knowledge, skills, and attitudes) (Blömeke et al., 2015), it could be expected that pre-service teachers' reading attitude develops positively throughout teacher education and that there will be fewer pre-service teachers with a rather negative reading attitude near graduation (e.g., Clark 2020). Furthermore, it could be hypothesised that pre-service teachers with a rather positive reading attitude (i.e., personally- and socially-oriented profiles) at enrolment remained stable or became even more positive about reading.

The aim of this longitudinal study is to fill a gap in the research literature on the development of pre-service teachers' reading attitude by profiling their reading attitude and by considering the following research questions:

1 To what extent do changes in the profile structure occur throughout teacher education?
2 To what extent does the profile structure explain differences in (a) perceived reading ability, (b) reading behaviour, and (c) reading promotive behaviour?

Method

Research setting

The study took place in a 3-year professional bachelor programme for teacher education (180 credits) in a university college in a large city in Flanders (Belgium). In this programme, pre-service teachers graduate in one of the following tracks: (1) kindergarten teacher (2.5-to-6-year-olds), (2) primary school teacher (6-to-12-year-olds) and (3) teacher in the first grades of secondary school (12-to-14-year-olds). Reading received attention in all tracks, because one of the transversal aims in all teacher education programmes in Flanders is to educate pre-service teachers with the necessary knowledge, skills and attitude for becoming effective language and reading teachers (Flemish Ministry of Education and Training, 2008).

Data collection procedure

The longitudinal study comprised two waves of data collection: the first took place in November 2012 (i.e., year 1 of teacher education), the second in June 2015 (i.e., year 3 of teacher education). Before participating in either wave, pre-service teachers were informed that their participation was entirely voluntary, and they were assured that the provided information would be treated confidentially.

Inclusion criteria for participation in the second data collection wave were that pre-service teachers were third-year students who started their teacher education in the academic year 2012–2013 and were in their final year in the academic year 2015–2016. A total of 146 pre-service teachers met these criteria and received an email invitation with information about the study's purpose and a website link to the survey in case they were willing to participate. A total of 131 pre-service teachers completed the survey online. Consequently, the response rate of pre-service teachers who met the inclusion criteria was good (89.7%) (refer to Table 1).

In year 1, 253 pre-service teachers took part. Of these, 22 pre-service teachers had missing data in year 1 (refer to 'no cluster' column in Table 1) but sufficient data in year 3 to be assigned to a cluster, so we included these pre-service teachers in the analyses of the longitudinal sample. Another seven pre-service teachers from the original year-1 sample were experiencing delays in the teacher education programme, so they were excluded from the recruitment process for not yet meeting our inclusion criterion (i.e., be in final year). Furthermore, 50.9% of the participants in the first wave were precluded from participation, because they had quit the teacher education programme. This relatively high attrition rate is in line with what is common in teacher education in Flanders, where one in every two pre-service teachers starting teacher education drops out. An additional three pre-service teachers who participated in the second data collection wave had missing data in year 3

TABLE 1. Flow diagram of participating pre-service teachers from the first (Yr1) to second (Yr3) data collection wave.

Yr1 clusters	Low attitude	Socially oriented	Personally oriented	No cluster[2]
Sample size	$n = 100$	$n = 85$	$n = 68$	$n = 59$
Participants meeting incl. criteria Yr3	$n = 41$	$n = 43$	$n = 37$	$n = 25$
Attrition rate[1]	59%	50%	46%	59%
Non-response Yr3	7% ($n = 3$)	14% ($n = 6$)	8% ($n = 3$)	12% ($n = 3$)
Remaining participants Yr1 clusters in Yr3	$n = 38$	$n = 37$	$n = 34$	$n = 22$
Movement to Yr3 clusters				
Low attitude	$n = 20$ (53%)	$n = 6$ (16%)	$n = 2$ (6%)	$n = 3$ (14%)
Socially oriented	$n = 7$ (18%)	$n = 20$ (54%)	$n = 11$ (32%)	$n = 10$ (46%)
Personally oriented	$n = 8$ (21%)	$n = 11$ (30%)	$n = 21$ (62%)	$n = 9$ (41%)
No cluster[2]	$n = 3$ (8%)	$n = 0$ (0%)	$n = 0$ (0%)	$n = 0$ (0%)

[1]The main reason for not meeting the inclusion criteria was that pre-service teachers had dropped out of the teacher education programme (50.9% overall).
[2]Participants were assigned to 'no cluster' when they had missing values in attitude measures (either in Yr1 or Yr3).

(i.e., no affective attitude scores), so they were excluded from the analyses, resulting in 128 pre-service teachers in the current longitudinal sample.

Participants

The mean age of the 128 participants who participated in both data collection waves (89 female participants) was 21.6 years (*Median* = 20.6, *SD* = 3.5, *range* = 19–39) in year 1. In year 3, their mean age was 23.8 years (*Median* = 22.7, *SD* = 3.6, *range* = 20–41). The majority were native speakers of Dutch (86.0%). Almost half attended the secondary-school track (48.4%; *n* = 62, 54.8% female participants), 27.3% (*n* = 35, 94.3% female participants) attended the kindergarten track and 24.2% (*n* = 31, 71.0% female participants) attended the primary-school track.

Measures

Clustering measures. In year 3, survey items were identical to the year 1 survey. Four scales assessed reading attitude: (1) 13 items measured *affective reading attitude*, such as 'I enjoy reading' (Cronbach's $\alpha_{year\ 1}$ = .90, $\alpha_{year\ 3}$ = .88); (2) the *personal-conative attitude* scale consisted of six items addressing personal intentions to read, as for example 'I read when I want to feel at ease' ($\alpha_{year\ 1}$ = .75, $\alpha_{year\ 3}$ = .87); (3) the *academic social-conative attitude* scale consisted of six items concerning pre-service teachers' intentions to read for their education and in relation with others, such as 'I would enjoy reading more if I could read the same materials as my fellow students and share my experiences' ($\alpha_{year\ 1}$ = .76, $\alpha_{year\ 3}$ = .80); and (4) the *recreational social-conative attitude* scale included five items addressing intentions to read outside the academic context and in relation with others, as for example, 'I read to be able to talk about it with my friends' ($\alpha_{year\ 1}$ = .73, α_{year}

$_3$ = .73). More details on the development of these scales can be found in Vansteelandt et al., (2017).

Criterion measures

Perceived reading ability. Two single items were used in both waves to measure pre-service teachers' perceptions about their reading competence: (1) they rated their own reading ability on a scale from 1 to 10 (1 = *very poor reader*, 10 = *very proficient reader*); and (2) they compared their own reading ability with that of people their own age on a five-point Likert scale (ranging from 1 = *a lot worse*, to 5 = *much better*). Almost all (97%) individual ability ratings were between 6 and 10 in year 3 (*M* = 7.98, *SD* = 1.32, *Median* = 8.00, *range*: 2–10), implying that all pre-service teachers rated themselves as capable readers, as a minimum rating of 6 is needed to pass a course in the current educational system. Because the comparison rating was normally distributed and correlated rather highly with the ability rating (*r* = .69), only the comparison rating was included in the analysis.

Reading behaviour. To measure pre-service teachers' reading frequency, a multiliterate view on reading was adopted, as research indicates that the inclusion of print and digital reading are necessary to get a good insight into the reading of 21st-century students (Leu et al., 2013). Consequently, the reading of various text genres in digital and printed formats were questioned, more specifically books (print/digital, for both fiction and non-fiction), newspapers (print/digital), magazines (print/digital) and comics and/or graphic novels (print). For each material, pre-service teachers reported their reading frequency on a five-point rating scale (1 = *never/almost never*, 2 = *a few times a year*, 3 = *a few times a month*, 4 = *multiple times per month*, 5 = *multiple times per week*). The scale had a Cronbach's alpha of α = .69.

Reading promotive behaviour. One question was used to measure pre-service teachers' willingness to promote reading when working as a beginning teacher: 'In my future school(s) I want to actively promote reading.' (1 = *yes*, 2 = *no*).

Data analytic procedures

Two-step cluster analysis on the four attitude scales administered during the first data collection wave resulted in three clusters (Vansteelandt et al., 2017). In the current study, the same cluster analysis technique was applied on the reading attitude of the year-3 sample. Subsequently, we conducted ANOVAs with post-hoc Bonferroni correction to examine differences in reading attitude measures among clusters and to determine whether year-3 clusters can be labelled identically as year-1 clusters. Preliminary analyses comparing the longitudinal sample (*n* = 128) with those pre-service teachers who only participated in year 1 (*n* = 181) showed no significant differences in age (*t*(307) = −.07, *p* = .943), gender (χ^2(1, 309) = 3.78, *p* = .052), and educational track (i.e., studying to become kindergarten, primary-school or secondary-school teachers; χ^2(2, 308) = 1.13, *p* = .568). Furthermore, those in the longitudinal sample only differed from the group who only participated in year 1 on affective (*t*(300) = −2.05, *p* = .041) and personal-conative attitude (*t*(304) = −2.08, *p* = .039). Both samples were comparable in the other attitude measures (*p*s > .869), reading behaviour (*p* = .998) and perceived reading ability (*p*s > .155) in year 1.

To answer our first research question, we tracked pre-service teachers' movement from year 1 to year 3 in terms of individual cluster membership (see also Bråten & Olaussen 2005). Next to calculating percentages for each possible cluster movement, we conducted general linear model (GLM) repeated measures analyses (contrast = repeated) to examine attitude changes between the first and third year of teacher education, within and between clusters. In line with Bråten and Olaussen (2005), we conducted ANCOVAs to validate the differences among clusters. In the ANCOVAs and repeated measures analyses, we included gender and age as covariates. That is, female participants had a significantly higher personal-conative attitude ($t(126) = 2.024$, $p = .045$) and tended to have a higher affective attitude ($t(126) = 1.97$, $p = .051$) than males. Older participants had higher affective attitudes ($r = .20$, $p = .041$).

Results

Cluster analysis near graduation

Two-step cluster analysis showed that a three-cluster solution seemed most appropriate. Discriminant function analysis revealed that cluster membership was correctly predicted for at least 87.8% of the cases ($M = 92.3\%$, range: 87.7–95.8%). Post-hoc tests of ANOVAs examining attitude differences among clusters (refer to Table 2) revealed that pre-service teachers in one of the clusters ($n = 48$; 26 female teachers) reported significantly higher scores on both social-conative attitudes ($ps < .001$) as compared with both

TABLE 2. Means (*SD*) of clustering measures in year 1 ($n = 253$) and year 3 ($n = 128$) per cluster.

	Year 1					
	LA	SO	PO	$F(2,250)$	$\eta^2_{partial}$	Group diffs[1]
Reading attitude						
Affective	2.07 (.41)	2.83 (.34)	3.07 (.40)	159.54***	.56	PO > SO > LA
Personal-conative	2.19 (.33)	2.96 (.36)	3.04 (.39)	154.71***	.55	PO, SO > LA
Social-conative–ac.	2.21 (.57)	2.70 (.38)	1.98 (.45)	45.64***	.27	SO > LA > PO
Social-conative–recr.	1.77 (.43)	2.29 (.40)	1.58 (.32)	68.86***	.36	SO > LA > PO

	Year 3					
	LA	SO	PO	$F(2,125)$	$\eta^2_{partial}$	Group diffs[1]
Reading attitude						
Affective	2.28 (.25)	3.03 (.36)	3.01 (.32)	62.94***	.50	SO, PO > LA
Personal-conative	2.11 (.41)	3.24 (.40)	3.18 (.42)	84.64***	.58	SO, PO > LA
Social-conative–ac.	1.94 (.73)	2.94 (.40)	1.99 (.46)	53.17***	.46	SO > PO, LA
Social-conative–recr.	1.50 (.44)	2.15 (.42)	1.60 (.33)	34.52***	.36	SO > PO, LA

Note: LA, low attitude; PO, personally oriented; SO, socially oriented.
[1]Group differences based on general linear model GLM univariate analyses with post-hoc Bonferroni corrections.
***$p < .001$.
**$p < .01$.

other clusters. Because this is comparable with the profile of the socially oriented cluster in year 1, the same label was adopted for this year-3 cluster.

Pre-service teachers in a second cluster ($n = 49$; 31 female teachers) scored significantly lower than their peers in the socially oriented cluster on both social-conative attitudes, whereas they did not differ in affective attitude and personal-conative attitude from the socially oriented cluster (ps = 1.000). Even though pre-service teachers in the personally oriented cluster in year 1 reported the highest affective attitude, the current pattern still seems to fit the profile of the personally oriented reader.

Finally, the third and smallest cluster ($n = 31$; 16 female teachers) had low scores on all four attitude measures. More specifically, pre-service teachers in this cluster reported significantly lower affective and personal-conative attitudes (ps < .001) than both other clusters and scored significantly lower than the socially oriented cluster on both social-conative attitudes (ps < .001). In year 1, this group had the lowest scores on affective and personal-conative attitudes, but had significantly higher scores on social-conative attitudes than the personally oriented cluster. In year 3, this difference in social-conative attitudes was no longer present (i.e., both clusters appeared to be similar on social-conative attitudes, and scored significantly lower than the socially oriented cluster).

In previous studies examining cluster movements as in the current study, Ward's minimum-variance hierarchical clustering was used to identify clusters (Bråten & Olaussen 2005; Ferguson & Bråten 2013). Applying this clustering technique to our data in both years resulted in similar findings and cluster labels as the two-step cluster analysis and comparable differences in attitude among clusters.

Stability and change in cluster membership

Because the three clusters were comparable in both data collection waves, we were able to divide pre-service teachers in two categories: pre-service teachers who (1) were in the same cluster during teacher education and (2) switched clusters over time. The largest stability rates were found in the personally oriented cluster. In both other clusters, about half of the profile members remained in the same cluster (refer to Table 1). Only a small percentage switched to the low attitude cluster.

To examine differences in reading attitude between pre-service teachers who were stable versus switching cluster members, we conducted a GLM 2 × 8 repeated measures ANCOVA with time (enrolment vs near graduation) as the within-subject factor and cluster-movement group (e.g., stable LA, LA–SO and SO–PO) as the between-subjects factor. We selected only the pre-service teachers who were assigned to a cluster at both measurement points and excluded the very small subgroup ($n = 2$) who switched from the personally oriented to the low attitude cluster.

When checking the assumptions of the repeated measures analysis, Box's test of equality of covariance matrices was not significant, Box's $M = 226.08$, $F(144, 6084.5) = 1.46$, $p = .099$. Levene's tests were significant for affective attitude in year 3, $F(7,96) = 2.86$, $p = .009$, and social-conative academic attitude in year 3, $F(7,96) = 3.16$, $p = .005$, implying that the findings for both these measures should be interpreted with caution. The within-subject multivariate test showed a significant interaction effect between time and cluster movement, $F(28,329.53)_{\text{Wilks' Lambda}} = 5.72$, $p < .001$, $\eta^2_{partial} = .30$, with contrasts being significant for each attitude measure (ps < .001). Univariate tests with Greenhouse–Geisser correction showed significant effects (all ps < .001) for

each attitude, $F(7,94)_{affective} = 6.72$, $\eta^2_{partial} = .33$; $F(7,94)_{perscon} = 7.86$, $\eta^2_{partial} = .37$; $F(7,94)_{con\text{-}soc\ ac} = 6.65$, $\eta^2_{partial} = .33$; $F(7,94)_{con\text{-}soc\ recr} = 8.98$, $\eta^2_{partial} = .40$.

To determine the source of the interaction effect between time and cluster movement, two simple main effects were analysed. First, we compared cluster-movement groups on each attitude measure within year 1 and within year 3. All means and *SD*s are shown in Table 3. Results revealed no attitude differences already present at enrolment between student teachers who remained stable versus who switched profiles ($ps_{affective} \geq .284$; $ps_{perscon} = 1.00$; $ps_{con\text{-}soc\ ac} = 1.00$; $ps_{con\text{-}soc\ recr} = 1.00$). Near graduation, post-hoc comparisons were in line with the general findings on cluster differences in scores on affective (stable SO, stable PO, SO–PO, PO–SO > stable LA, SO–LA; $ps \leq .014$), personal conative (stable SO, stable PO, LA–PO, SO–PO, PO–SO > stable LA, SO-LA; $ps \leq .008$) and both social-conative attitudes (stable SO, PO–SO > stable PO, stable LA, SO–LA; $ps \leq .032$). For pre-service teachers who remained or became low-attitude cluster members, for example, these findings imply that they scored relatively low on all attitude measures near graduation.

In the second simple main effect, we contrasted attitude scores of year 1 with year 3 for each cluster-movement group (refer to Figure 1 for difference scores). Overall, the attitude changes of pre-service teachers who switched clusters seemed to reflect the profile characteristics of their new cluster. Irrespective of graduation track (i.e., kindergarten, primary or secondary), low-attitude pre-service teachers at enrolment scored lowest on affective and personal-conative attitudes, yet showed significant gains in both these attitudes when switching to the socially oriented ($ps \leq .001$) or personally oriented cluster ($ps \leq .001$). Further, changes in the expected direction were found in one or both social-conative attitudes when switching to the socially oriented ($p_{con\text{-}soc\ ac} = .014$; $p_{con\text{-}soc\ recr} = .192$) and personally oriented cluster ($p_{con\text{-}soc\ ac} = .253$; $p_{con\text{-}soc\ recr} = .942$). Finally, socially oriented cluster members who switched to the low-attitude cluster (i.e., SO–LA) significantly decreased in almost all attitude scores ($p_{affective} \geq .613$; $p_{perscon} \leq .001$; $p_{con\text{-}soc\ ac} = .011$; $p_{con\text{-}soc\ recr} \leq .001$). Pre-service teachers who remained in the same cluster also showed some significant attitude changes: the personal-conative attitude of stable SO increased ($p = .010$), as did stable LA's affective attitude ($p = .013$), whereas stable LA's social-conative recreational attitude significantly decreased ($p = .036$). Stable PO did not show any significant changes ($.050 \leq ps \leq .611$).

Convergent validity evidence

To gather convergent validity evidence, it was examined whether the pre-service teachers in the three clusters in year 3 differed on the criterion measures reading frequency, willingness to promote reading and perceived reading ability (i.e., comparison rating) administered near graduation. We therefore conducted GLM univariate ANCOVA analyses (refer to Table 4). Significant main effects for cluster membership were detected, with post-hoc analyses revealing that the low-attitude cluster reported to read significantly less frequently than both the socially oriented ($p = .003$) and the personally oriented cluster ($p = .032$), whereas no differences were found between the socially oriented and personally oriented clusters ($p = 1.00$). In addition, the low-attitude cluster perceived their reading competence significantly more negatively than the socially oriented cluster, $p = .002$. The latter two clusters did not differ significantly from the personally oriented cluster, $ps \geq .087$.

TABLE 3. Means (*SD*) of pre-service teachers' reading attitudes per cluster-movement group from enrolment (year 1) to near graduation (year 3).

Year-1 Cluster	Year-3 Cluster	*n*	Affective		Personal-conative		Socially conative–academic		Socially conative–recreational	
			M (SD) year 1	M (SD) year 3	M (SD) year 1	M (SD) year 3	M (SD) year 1	M (SD) year 3	M (SD) year 1	M (SD) year 3
LA	LA	20	2.04 (.39)	2.23 (.19)	2.18 (.35)	2.13 (.41)	2.15 (.56)	1.99 (.78)	1.72 (.39)	1.52 (.45)
	PO	8	2.20 (.28)	2.87 (.22)	2.38 (.21)	3.08 (.56)	2.40 (.48)	2.13 (.53)	1.73 (.32)	1.75 (.28)
	SO	7	2.27 (.29)	2.76 (.11)	2.14 (.22)	2.88 (.28)	2.13 (.59)	2.81 (.22)	1.93 (.51)	2.20 (.45)
SO	SO	20	2.92 (.35)	3.02 (.33)	3.02 (.37)	3.28 (.34)	2.77 (.38)	2.92 (.36)	2.26 (.29)	2.21 (.47)
	PO	11	2.84 (.28)	2.98 (.29)	2.96 (.33)	3.15 (.43)	2.53 (.35)	2.11 (.40)	2.32 (.31)	1.80 (.22)
	LA	6	2.51 (.22)	2.45 (.28)	2.88 (.20)	2.22 (.46)	2.67 (.37)	2.00 (.67)	2.43 (.46)	1.57 (.34)
PO	PO	21	3.18 (.30)	3.07 (.33)	3.04 (.41)	3.21 (.35)	2.01 (.32)	1.90 (.54)	1.62 (.29)	1.51 (.34)
	SO	11	3.06 (.38)	3.08 (.41)	3.09 (.43)	3.27 (.43)	1.97 (.53)	2.92 (.51)	1.64 (.25)	2.20 (.30)
	LA	2								

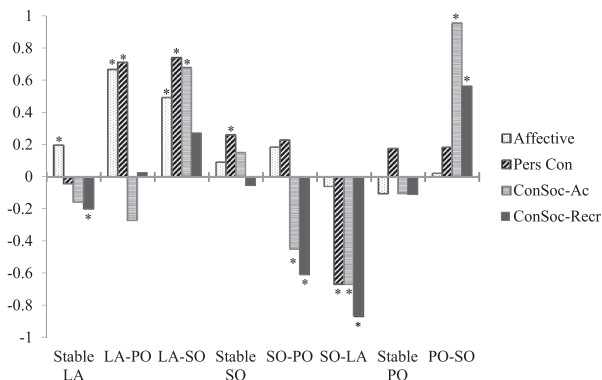*Note*: LA, low attitude; PO, personally oriented; SO, socially oriented.

FIGURE 1. Reading attitude change per cluster-movement group from enrolment to near graduation. *Note*. Bars with * represent a significant increase or decrease in attitude score, all $ps \leq .036$. Cluster-movement groups: *Stable LA/SO/PO* = low attitude/socially oriented/personally oriented in Yr1 and Yr3; *LA–PO/LA–SO* = switched from low attitude (Yr1) to personally oriented/socially oriented (Yr3); *SO–PO/SO–LA* = switched from socially oriented (Yr1) to personally oriented/low attitude (Yr3); *PO–SO* = switched from personally oriented (Yr1) to tsocially oriented (Yr3).

A chi-square analysis revealed significant differences among profiles regarding their willingness to invest in reading promotion in future school(s) ($\chi^2 = 18.27$, $p < .001$). Overall, 33% of pre-service teachers indicated not to be willing to promote reading in the future. Of the low-attitude cluster, 61% showed no intention of reading promotive behaviour ($SR = 2.8$), whereas this was only the case for 15% of the socially oriented ($SR = -2.1$) and 32% of the personally oriented cluster ($SR = -.10$).

Discussion

Building on previous research on the affective aspects of reading and their essential role in one's reading process (McGeown et al., 2015), the present study's main objective was to examine the stability and change in pre-service teachers' reading attitude throughout teacher education. The results point to five prominent insights. First, three reading attitude profiles could be distinguished (i.e., personally-oriented, socially-oriented and low-attitude) and corroborated at both measurement occasions. Three-quarters of the sample graduates displayed positive feelings about reading, and rather high personal and/or social intentions to read. Second, pre-service teachers' reading attitude remained quite stable throughout teacher education. Of those not switching profiles, the majority belonged to profiles with a positive reading attitude. Third, in line with prior studies underlining the possible susceptibility to attitude change (Cardarelli 1992; Maio & Haddock 2015; Visser & Krosnick 1998), a reasonable amount of pre-service teachers did change profiles throughout teacher education. Fortunately, they seemed most likely to evolve towards one of the profiles with a rather positive reading attitude. Importantly, no attitude differences were detected at enrolment between pre-service teachers who switched or remained in the same profiles. Therefore, it can be hypothesised that switching profile can be—at least partially—attributed to teacher education instead of to pre-existing reading attitude differences at enrolment. Fourth, although the low-attitude profile shifted from being the largest group at the start to the smallest one near graduation, it can be considered a reason for concern that still almost one-fourth of the teachers in this sample graduated with a low reading attitude. This also is highlighted by

TABLE 4. Means (SD) of criterion measures in year 1 (n = 253) and year 3 (n = 128) per cluster to gather convergent validity evidence.

	Year 1						Year 3					
	LA	SO	PO	F (4,248)	$\eta^2_{partial}$	Group diffs[1]	LA	SO	PO	F (4,123)	$\eta^2_{partial}$	Group diffs[1]
Reading behaviour												
Reading frequency	2.37 (.63)	2.89 (.69)	2.78 (.64)	17.88***	.13	SO, PO > LA	2.81 (.65)	3.32 (.64)	3.20 (.66)	3.84**	.09	SO, PO > LA
Perceived reading ability												
Comparison rating	2.83 (.74)	3.26 (.76)	3.32 (.82)	10.97***	.08	PO, SO > LA	2.83 (.76)	3.52 (.80)	3.26 (.82)	3.19**	.09	SO > LA, PO = SO, PO = LA

Note: LA, low attitude; PO, personally oriented; SO, socially oriented.
[1]Group differences based on general linear model Univariate analyses with post-hoc Bonferroni corrections.
*** $p < .001$.
** $p < .01$.
* $p \leq .05$.

the fifth insight that these pre-service teachers also appeared to read less frequently than both other profiles and perceived themselves as poorer readers than teachers in the socially oriented profile. Additionally, and maybe even more concerning, graduates with a low reading attitude showed to be least willing to promote reading in their future school(s).

Educational research on motivation and self-efficacy pointed to a positive relationship between affective components for teachers' behaviour in the classroom (e.g., reading promotive behaviour) and their students' outcomes (Fernet et al., 2016; George et al., 2018; Guay et al., 2016). Therefore, it can be questioned how pre-service teachers belonging to the low-attitude profile will actually perform in their future classrooms when it comes to promoting students' reading. Will they be competent to further stimulate motivated readers on the one hand and students who do not like to read on the other hand? Although previous studies pointed to the so-called Peter effect (Applegate & Applegate 2004), stating that one cannot give what one does not possess, it still remains an under-studied issue.

Future studies should focus more on the relationship between (pre-service) teachers' own affective aspects of reading and their actual reading promotive behaviour in the classroom and whether and how this relates to students' outcomes. By doing so, empirical evidence can be gathered throughout the whole process of becoming and remaining a competent teacher, to reveal whether these person-level affective aspects actually affect reading instruction efficacy and reading promotive teacher behaviour. Examining differences between pre-service teachers in the socially- versus personally-oriented profile seems particularly interesting in this respect. In the current survey, pre-service teachers did not report on their willingness to interact with their students after graduation, so we do not yet know whether personally-oriented profile members do not like to interact about reading in general, or especially not with fellow students and lecturers (i.e., focus of the current academic social-conative attitude scale) and with family and friends (i.e., focus of the recreational social-conative attitude scale). Future research should therefore include a scale on pre-service teachers' willingness to interact with students about reading to find out whether differences in social-conative attitudes will also be reflected in the interaction with students in actual class (e.g., Classroom Assessment Scoring System™, Pianta & Hamre 2009; Protocol for Language Arts Teaching Observation, Grossman et al., 2013).

Becoming and remaining a competent teacher can be regarded as a (career-long) professional development process consisting of three interrelated phases: (1) pre-service teacher education, (2) the first years in the profession, known as the induction phase and (3) continuing in-service professional development (Feiman-Nemser 2001; Rossi et al., 2017). The present study's main focus is on the first phase, but also might give valuable insights regarding the second phase, when beginning teachers set off as fully fledged teachers having to promote reading. For the first phase, current results may point to the added value of a more data-driven approach in the (re)design of courses and curricula in teacher education (Van den Hurk et al., 2016). Knowing the state of incoming pre-service teachers' affective aspects of reading and how this might possibly change throughout teacher education might be of great value for both instructional practices in courses and the (re)design of larger units within a programme. Pre-service teachers with different profiles may have different needs and may be responsive to different educational approaches (Endedijk et al., 2014; van der Lans et al., 2017). As the present study only examined one certified teacher education institute, it is advisable to widen the scope and get more insights from teacher education programmes worldwide.

For the induction phase, current findings seem to highlight the need for continuous professional development, emphasising that teacher education should not stop at graduation,

but is a process that needs to be addressed continuously (Maskit 2011; Opfer & Pedder 2011). Building on this study's results where almost one-fourth of the pre-service teachers state to be low in reading attitude, not to read frequently, perceive themselves as less able readers and seem less willing to promote reading, it is recommended to keep track of these teachers. For example, by checking whether they actually act on these results in their classroom and by providing them with customised professional development (Desimone, 2009, Vansteelandt et al., 2019). It further seems worthwhile to not only focus on this group of unenthusiastic readers, but also on teachers in both other profiles, as the first years in the profession appear to be crucial for every teacher (Aspfors & Fransson 2015).

The person-centred longitudinal approach in this study provided a better understanding of different subgroups with similar characteristics in a potentially heterogeneous group (Ferguson & Bråten 2013; Rosenzweig & Wigfield 2017). Contrary to a solely variable-centred approach, a person-centred perspective has added value in view of adjusting teacher education to possible individual differences within the group of pre-service teachers (Hickendorff et al., 2018). However, as our approach was still merely based on quantitative data, it is recommended for future research to apply mixed-methods designs (Creswell & Clark 2010). By combining both quantitative survey results and qualitative results based on focus groups and/or in-depth interviews, it might be possible to comprehend more thoroughly why pre-service teachers' attitude changes and how this may affect their willingness to invest in reading promotion in practice. In this respect, it might also be beneficial to develop more fine-grained instruments, possibly grasping more comprehensively the latent differences in context (i.e., individually- vs socially-oriented) and purpose (i.e., recreational vs academic).

Further research could also address pre-service teachers' competence regarding promoting reading more as a whole (i.e., knowledge, skills and attitudes). This will be relevant given that both affective-motivational factors (e.g., attitudes) as well as cognitions (e.g., knowledge) underpin teaching behaviour (Blömeke et al., 2015): what do pre-service teachers *know* about affective aspects of reading and why it is vital to focus on these in the classroom (De Naeghel et al., 2012; McKool & Gespass 2009)? To what extent do pre-service teachers have the necessary *skills* to effectively foster students' affective aspects of reading (Guthrie & Klauda 2014; Neugebauer 2016)? Furthermore, it should be examined whether pre-service teachers have a positive *attitude* towards reading, are motivated readers themselves (both personally and professionally) and show strong self-efficacy beliefs when it comes to promoting students' reading motivation (e.g., Clark 2020). Taking this into account, pre-service teachers could most likely grow to be teachers capable of offering students the necessary high-quality reading education that can be expected to alter the declining trend in students' affective aspects of reading throughout their educational careers.

Acknowledgements

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Iris Vansteelandt is affiliated to Artesis Plantijn University College Antwerp (Belgium), Department of Education and Training, and to Ghent University (Belgium), Faculty of Psychology and Educational Sciences, Department of Educational Studies, Research Group Language, Learning, Innovation. She is a teacher educator and postdoctoral researcher. Her main research interests include reading attitude, reading motivation, teacher education and continuing professional development.

Suzanne E. Mol is affiliated to Leiden University (The Netherlands), Department of Learning and Behavior Problems in Education: Challenges and Solutions, Institute of Education and Child Studies, Faculty of Social and Behavioral Sciences. She is an assistant professor. Her main research interests include reading attitude, reading motivation, leisure reading and curriculum-based measurement.

Hilde Van Keer is affiliated to Ghent University (Belgium), Faculty of Psychology and Educational Sciences, Department of Educational Studies, Research group Language, Learning, Innovation. She is a professor. Her main research interests include innovative teaching methods in education, self-regulated learning and language didactics.

Address for correspondence: Iris Vansteelandt, Department of Education and Training, Artesis Plantijn University College, Noorderplaats 2, 2000 Antwerpen, Belgium. E-mail: iris.vansteelandt@ugent.be; iris.vansteelandt@ap.be