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Trainee teachers' intention to incorporating ICT use into teaching practice in relation to their psychological characteristics: The case of group-based intervention

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Abstract

Personality traits and other psychological variables have been found to influence the use of technology as well as group functioning and effectiveness. In this study it is hypothesized that the Big Five Inventory (BFI) personality traits and psychological variables are related to teachers' willingness to incorporate ICT into their teaching practices, as well as to within group interactions and outcome. The study employs a pre- and post- intervention research design, consisted of a training program in ICT in Education offered to a sample of 109 undergraduate trainee teachers which was divided into experimental (homogenous & heterogeneous) and control groups based on their personality traits and psychological characteristics, in order to examine the significance of these traits' configuration in work groups, their intention to incorporate ICT into their future teaching practice and the quality of within group cooperation. Preliminary results revealed individual differences concerning gender and anxiety as well as group differences in favour of heterogeneous groups.

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1. Introduction

The Information and Communication Technology (ICT) prevails as one of the milestones of the modern educational system. A prolific stream of research provides evidence as to the positive effects of the use of ICT on students' learning as well as on teachers' professional development in line with the educational demands of the twenty-first-century knowledge society (Kreijns, Vermeulen, Kirschner, Buuren, & Acker, 2013). Various forms of ICT implementation in education expand opportunities for flexible and up-to-date learning and also reinforce teachers' reflection and collaboration, the latter having been suggested as key components for teachers' career development (Lawless & Pellegrino, 2007). Yet, ICT use has not become an integral part of classroom practices. Consequently, teacher education programs have a substantial role to play in preparing graduates for ICT uptake in schools. Teachers' ICT training programs are designed in different cultural contexts with a unanimous aim to foster positive attitudes to computers among teachers as well as to enhance their skill levels in the integration of ICT into teaching practices. Indeed, teachers' self-efficacy and levels of confidence in using ICT have been constantly found to be common enablers for prospective ICT integration (Albion, 1999; Bakar & Mohamed, 2008; Becta, 2004; Hammond, Reynolds, & Ingram, 2011; Rachel & Fordham, 2004; Sang, Valcke, Braak, & Tondeur, 2010). On the other hand, studies on trainee teachers' attitudes to and beliefs about using ICT in the classroom have yielded inconsistent findings on the role of attitudes on teachers' intention to incorporating ICT. Serving as a plausible explanation of these contradictory results, it has been stressed that it is important to differentiate between attitudes toward ICT generally and ICT as an educational tool (Player-Koro, 2012). The attitudes toward using ICT as a behavior rather than as an object better predict trainee teachers' intention to use ICT in their teaching practices (Zhang, Aikman, & Sun, 2008). In any case, self-efficacy and attitudes are suggested to be mutually related to teachers' ICT use (Player-Koro, 2012), taken also into account that attitudes are moderated by further subjective psychological and personality characteristics (Kounenou, Roussos, & Yotsidi, 2013; Roussos, 2007).

Despite the foreseen benefits of incorporating technology into the teaching practices and irrespectively of the prominent training strategies of ICT skills and positive attitudes development, many educational programs present limitations on their effectiveness to induce, or even increase, student teachers' willingness to use ICT into classroom activities (Chai, Hong, & Teo, 2009; Ertmer, 2005; Haydn & Barton, 2007; Sang, Valcke, Braak, & Tondeur, 2010; Barton & Haydn, 2006; Mumtaz, 2000). An additional factor that seems to shape trainee teachers' intention for prospective ICT use is related to teachers' broader pedagogies (Cox, 2003). For example, in a study examining the encouragers of student teachers' use of ICT during a 1-year initial teacher education programme it was revealed that there were different groups of trainees in relation to their intention for ICT use. Indeed, the variation of ICT use among student teachers was, among other factors, also related to teachers' pedagogical belief that ICT is beneficial to learning (Hammond, Reynolds, & Ingram, 2011). Together with wider social and cultural factors influencing ICT usage by teachers (Somekh, 2008) and the role of pedagogical aspects in the ICT courses (Veen, 1993), several models have been suggested with the aim of explaining the existing incongruence between the demand for and teachers' unwillingness to embed ICT in schools. An innovative one is the Integrative Model of Behaviour Prediction (IMBP) (Kreijns et al., 2013). IMBP is concerned with the use of specific ICT tools rather than ICT in general and explains intentional ICT implementation as resulting from teachers' dispositional variables, such as attitudes, self-efficacy and subjective norms. Similarly, the application of self-determination theory in the information systems field contributes to explaining teachers' motivation to continue to use technology by means of constructs that represent users' basic psychological needs including perceived autonomy, perceived competence and perceived relatedness (Sorebo, Halvari, Gulli, & Kristiansen, 2009). Thus, the intention to integrating ICT into teaching practices entails a dynamic process involving teachers' cognitive attributes (i.e. competence and self-efficacy in ICT use, attitudes, beliefs), but also professional and personal variables as well.

With regard to teachers' professional factors, evidence reveals that subject matter and teaching experience are strongly associated with the beliefs teachers hold about ICT in education as well as with their confidence to integrating ICT in teaching (Bakar & Mohamed, 2008; Jimoyiannis & Komis, 2007), while teachers' gender has an effect on the degree to which they use ICT (Bakar & Mohamed, 2008; Becta, 2004; Hennessy, Ruthven, & Brindley, 2005). Contradictory evidence exists with regard to the role of teachers' age in ICT use (Braak, 2001a; Bradley & Russell, 1997; Bakar & Mohamed, 2008). These juxtaposed findings could be possibly explained by further individual characteristics that pertain more to teachers' personality. However, psychological individual

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