



Applying the integrated trans-contextual model to mathematics activities in the classroom and homework behavior and attainment



Martin S. Hagger^{a,b,c,*}, Sarwat Sultan^d, Sarah J. Hardcastle^a, Johnmarshall Reeve^e, Erika A. Patall^f, Barry Fraser^g, Kyra Hamilton^c, Nikos L.D. Chatzisarantis^a

^a Laboratory of Self-Regulation and Health Psychology and Behavioural Medicine Research Group, School of Psychology and Speech Pathology, Faculty of Health Sciences, Curtin University, Perth, Australia

^b School of Sport Sciences, Faculty of Sport and Health Sciences, University of Jyväskylä, Jyväskylä, Finland

^c School of Applied Psychology and Menzies Health Institute Queensland, Griffith University, Brisbane, Australia

^d Department of Applied Psychology, Bahauddin Zakariya University, Multan, Pakistan

^e Department of Education, Korea University, Seoul, South Korea

^f College of Education, Department of Educational Psychology, University of Texas at Austin, United States

^g Science and Mathematics Education Centre, Curtin University, Perth, Australia

ARTICLE INFO

Article history:

Received 31 December 2014

Received in revised form 11 September 2015

Accepted 26 November 2015

Keywords:

Trans-contextual model

Autonomous motivation

Theoretical integration

Self-determination theory

Theory of planned behavior

ABSTRACT

The aim of the present study was to test hypotheses of the trans-contextual model. We predicted relations between perceived autonomy support, autonomous motivation toward mathematics learning activities in an educational context, autonomous motivation toward mathematics homework in an out-of-school context, social-cognitive variables and intentions for future engagement in mathematics homework, and mathematics homework outcomes. Secondary school students completed measures of perceived autonomy support from teachers and autonomous motivation for in-class mathematics activities; measures of autonomous motivation, social-cognitive variables, and intentions for out-of-school mathematics homework; and follow-up measures of students' mathematics homework outcomes: self-reported homework engagement and actual homework grades. Perceived autonomy support was related to autonomous motivation toward in-class mathematics activities. There were trans-contextual effects of autonomous motivation across educational and out-of-school contexts, and relations between out-of-school autonomous motivation, intentions, and mathematics homework outcomes. Findings support trans-contextual effects of autonomous motivation toward mathematics activities across educational and out-of-school contexts and homework outcomes.

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1. Introduction

Motivation is central to successful learning and education-related outcomes in the classroom (Steinmayr & Spinath, 2009). Autonomous motivation, in particular, has been consistently shown to be related not only to engagement in class activities and adaptive educational outcomes, such as better overall grades, among school children (Deci, Vallerand, Pelletier, & Ryan, 1991; Pintrich & DeGroot, 1990), but also self-directed learning activities outside of the class, such as homework effort and attainment (Reeve, 2002). According to self-determination theory (Deci & Ryan, 2000), autonomous motivation affects educational persistence,

effort, and performance because activities pursued for autonomous reasons are likely to satisfy children's psychological needs for autonomy, competence, and relatedness. The satisfaction of these needs is required for optimal functioning and tends to be accompanied by perceptions of personal agency, interest, satisfaction, and positive affect. The pursuit of autonomously-motivated activities is self-reinforcing precluding the need for extrinsic reinforcement. Educators have, therefore, advocated fostering autonomous motivation in classroom contexts (Reeve, Bolt, & Cai, 1999; Reeve & Jang, 2006). Furthermore, children that perceive their teachers as autonomy supportive are more likely to report autonomous motivation and exhibit adaptive educational outcomes in the classroom (Ferguson, Kasser, & Jahng, 2011; Guay, Boggiano, & Vallerand, 2001). Fostering autonomous motivation in the classroom likely produces better academic outcomes by instilling autonomous motivation in class but also autonomous motivation toward self-directed learning outside school, such as homework engagement. There is, however, a relative dearth of research providing direct tests of these effects (Hagger & Chatzisarantis, 2012; Vallerand, 1991). The present study adopted the integrated trans-contextual model of motivation to examine relations

* Corresponding author at: Laboratory of Self-Regulation and Health Psychology and Behavioural Medicine Research Group, School of Psychology and Speech Pathology, Faculty of Health Sciences, Curtin University, GPO Box U1987, Perth, WA 6845, Australia.

E-mail addresses: martin.hagger@curtin.edu.au (M.S. Hagger), sarwatsultan@hotmail.com (S. Sultan), sarah.hardcastle@curtin.edu.au (S.J. Hardcastle), reeve@korea.ac.kr (J. Reeve), patall@austin.utexas.edu (E.A. Patall), b.fraser@curtin.edu.au (B. Fraser), kyra.hamilton@griffith.edu.au (K. Hamilton), nikos.chatzisarantis@curtin.edu.au (N.L.D. Chatzisarantis).

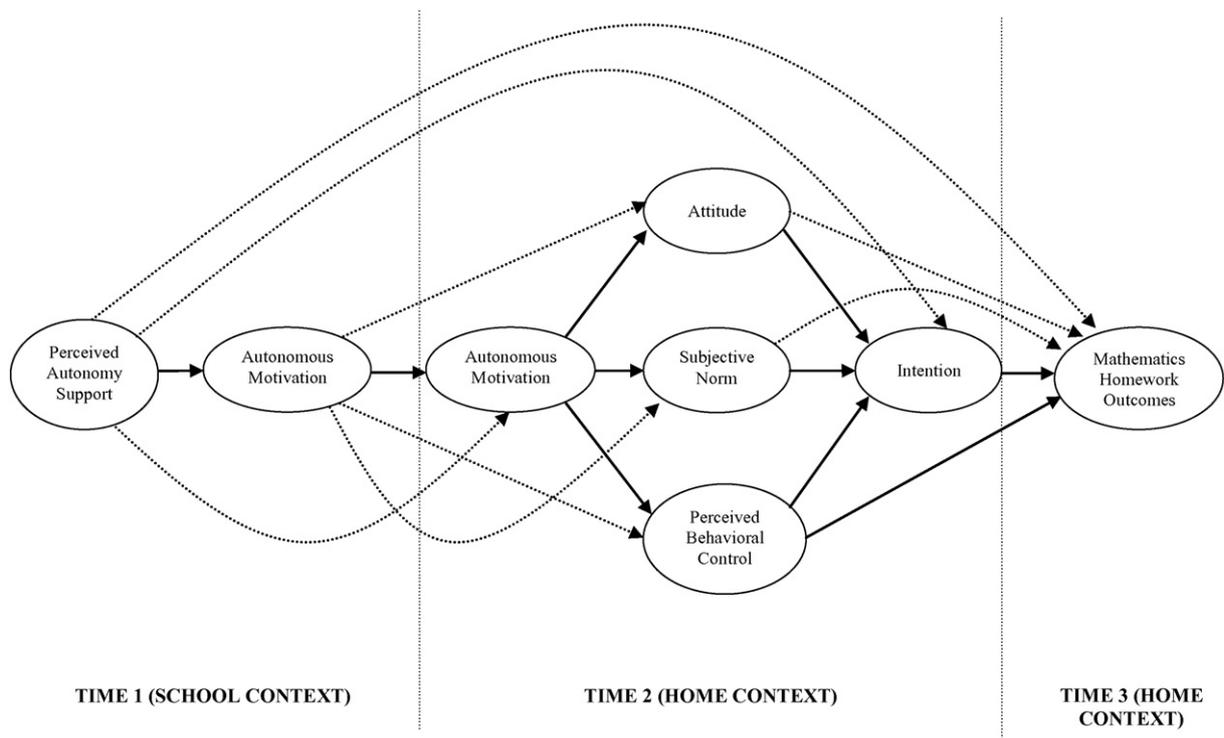


Fig. 1. The hypothesized trans-contextual model. Note. Broken lines between constructs indicate direct effects proposed to be non-significant or unsubstantial relative to the indirect effects.

between secondary school students' perceived autonomy support toward mathematics activities in a school context, autonomous motivation toward mathematics activities in school, autonomous motivation toward mathematics homework outside of school, and social cognitive beliefs about doing mathematics homework in the future.

1.1. The trans-contextual model

The trans-contextual model outlines the process by which school students' autonomous motivation toward activities in an educational context is transferred to autonomous motivation, and intentions and future engagement in educational activities outside of school (Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003). Model hypotheses are summarized in Fig. 1 and Table 1.¹ A central premise of the trans-contextual model is that autonomous forms of motivation are adaptive and lead to increased persistence on tasks without the need for any externally-referenced contingency. Autonomous motivation is defined as acting for reasons of interest and enjoyment in the belief that the self is the origin of the behavior. Autonomous motivation is contrasted with controlled motivation, defined as acting out of externally-referenced obligation or reinforcement and leads to behavioral persistence only as long as the external contingency is present. Promoting autonomous forms of motivation in educational contexts is considered adaptive as it has been linked with higher levels of persistence on educational tasks (Reeve et al., 1999). Teachers can foster greater autonomous motivation by adopting autonomy-supportive styles that promote students' interest and self-directed learning. Students' perceived autonomy support serves as a proxy measure of teachers' autonomy support. The link between perceived autonomy support and autonomous motivation toward activities in educational contexts forms the first hypothesis of the trans-contextual model. School students' perceived autonomy support from teachers with respect to

classroom educational activities is expected to be associated with their autonomous motivation (H_1) in the classroom.

The transfer of motivation across educational and out-of-school contexts is central to the trans-contextual model and consistent with Vallerand's (1997) proposal of significant relations between contextual-level motivational orientations. Hagger, Chatzisarantis, Barkoukis, Wang, and Baranowski (2005) proposed that cues in a different context to the educational context, such as performing educational activities (e.g., mathematics homework) in an out-of-school context (e.g., home), will likely activate the 'script' or schema for mathematics activity engagement so that it serves as a guide or template for motivational responses and linked patterns of action in that context (Vallerand, 2000). Based on this mechanism, autonomous motivation toward mathematics activities in the educational context is proposed in the model to be related to autonomous motivation toward mathematics homework in the out-of-school context (H_2).

The trans-contextual model also proposes that autonomous forms of motivation toward mathematics activities out-of-school contexts will be related to beliefs and intentions regarding engagement in those activities in the future. The trans-contextual model integrates the theory of planned behavior (Ajzen, 1991, 2015) to delineate relations between autonomous motivation, beliefs about engaging in behavior, and intentions and future behavioral enactment. According to the theory, *behavioral intention*, a motivational variable that reflects the degree of planning and effort an individual is likely to invest in pursuing a given behavior, is the proximal determinant of behavior. Behavioral intention is a function of *attitudes*, an individual's positive or negative evaluation of engaging in a future target behavior, *subjective norms*, beliefs that social agents pressurize one into engaging in the behavior, and *perceived behavioral control*, beliefs regarding personal capacity to engage in the behavior. Intentions are hypothesized to mediate effects of attitudes, subjective norms and perceived behavioral control on actual behavior (Ajzen, 1991, 2015). Consistent with self-determination theory, individuals are compelled to satisfy their psychological needs and need satisfaction will engender autonomous motivation to engage in specific behaviors likely to be need satisfying (Hagger, Chatzisarantis, & Harris,

¹ Readers are encouraged to refer to Table 1 and Fig. 1 to augment understanding of the model hypotheses.

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