Push or pull? Unpacking the social compensation hypothesis of Internet use in an educational context

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ABSTRACT

Individual differences such as social anxiety and extraversion have been shown to influence education outcomes. However, there has been limited investigation of the relationship between individual differences and attitudes towards online and offline learning. This study aimed to investigate for the first time how social anxiety and extraversion influence student attitudes to online and offline learning, specifically in relation to tertiary level practical activities. Based on the social compensation hypothesis, it was predicted that students with higher levels of extraversion and lower levels of social anxiety would report more favourable attitudes to face-to-face learning activities. It was further predicted that less extraverted and more socially anxious students would have more favourable attitudes to online learning activities. Undergraduate students ($N = 322$, 67% female) completed the HEXACO-60 personality inventory, the Mini Social Phobia Inventory, and measures of attitudes towards online and offline activities. Two hierarchical multiple regressions were conducted. The first revealed that neither extraversion nor social anxiety contributed significantly to preference for online practical activities. The second regression revealed that greater emotionality, greater extraversion, greater conscientiousness, and lower levels of social anxiety were associated with more favourable attitudes towards face-to-face practical activities. In contrast to predictions, extraversion and social anxiety did not significantly contribute to attitudes to online learning activities. However, in line with predictions, greater extraversion and lower levels of social anxiety were associated with more favourable attitudes towards face-to-face practical activities. These findings indicate that online learning activities have limited compensatory effects for students who experience social discomfort, and that the social compensation hypothesis may apply within an educational framework, but in unexpected ways.

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1. Introduction

Increasing attention is being paid to the influence of individual differences on education outcomes (e.g., Wach, Karbach, Ruffing, Brünken, & Spinath, 2016). However, despite the rapidly changing nature of tertiary education as learning resources and activities are transitioned into online offerings, our understanding of the role of individual differences in learning as a function of online vs. offline learning environments remains limited. This study aimed to address this gap in the literature by

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investigating for the first time how social anxiety and extraversion influence student attitudes to online and offline learning, using established models of Internet use as a theoretical base. It is hoped that the insight offered here will provide valuable information for tertiary educators as they aim to maximise student engagement and experience in an increasingly online world.

Social anxiety (also termed 'social phobia') is characterised by a persistent anxiety in regards to social situations where negative social evaluations from others might occur; a fear that this anxiety or embarrassment will be noticed by others (for example, a shaking voice); and an avoidance of situations where social performance might be required (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition [DSM-5]: American Psychiatric Association, 2013). Social anxiety can be considered to have two domains; anxiety related to requirements to interact (for example participating in group discussion or answering questions), and anxiety associated with being observed (Mattick & Clarke, 1998). Thus, social anxiety is not only associated with interaction, but also simply being present in a social setting. These concerns extend beyond shyness, with individuals who have social anxiety often experiencing panic, social isolation, and impaired cognitive processes, such as difficulty in concentrating (Stein & Stein, 2008). It has also been reported that stressors which contained a socially-evaluative threat elicit stronger negative physiological responses (such as increased cortisol production) than other non-social stressors, and may have long-term repercussions for health (Dickerson & Kemeny, 2004). Social anxiety is a relatively common disorder, with a lifetime prevalence rate of around 12% (Ruscio et al., 2008). Of particular concern for educators, social anxiety can affect a substantial proportion of university students, with rates around 10% for mild social anxiety, and 29% for severe social anxiety (Dell'Osso et al., 2014).

Dell'Osso et al. (2014) also reported that students with mild and severe levels of social anxiety experienced functional impairment at university. For example, difficulties with study-related tasks (working with others, speaking at a meeting) or avoidance behaviours (not expressing disagreement, withdrawal from studies) were reported. Clearly, understanding how best to facilitate learning experiences for students with social anxiety would be a welcome skill for tertiary educators, in terms of both curriculum and learning activity design. The nature of the Internet and eLearning offers some promise in this regard.

The premise that students who experience social discomfort would find online learning activities appealing aligns with the *social compensation hypothesis* of Internet use. The social compensation hypothesis posits that the Internet allows individuals who feel uncomfortable engaging in face-to-face activities a more pleasing alternative (e.g., Lee, 2009; Weidman et al., 2012; Zywica & Danowski, 2008). The social compensation hypothesis appears to apply to individuals who are more introverted and less sociable in the offline world. According to this hypothesis, these individuals turn to the online environment to compensate for a lack of offline social networks. The preference for online interaction is assumed to be due to the controlled and asynchronous nature of the Internet (Suler, 2004). For example, a person who experiences a lack of confidence when speaking to others in person may feel more comfortable communicating with others when they can take the time to craft a considered response from the relative safety of their keyboard. Further, concerns in regards to appearance in social situations (such as a fear of blushing when speaking) can be readily avoided in the online environment.

The social compensation hypothesis of Internet use has received substantial support in multiple contexts. McCord, Rodebaugh, and Levinson (2014) found that higher levels of social anxiety were associated with greater social networking site use. Indian and Grieve (2014) found that Facebook-derived social support was associated with greater subjective well-being, but only for individuals with high levels of social anxiety, explaining 11.5% of variance (vs. 3.6% of variance in the low social anxiety group). Other findings supporting the social compensation hypothesis come from studies looking at online chat (e.g., Desjarlais & Willoughby, 2010) online video game play (e.g., Kowert, Vogelgesang, Festl, & Quandt, 2015), and instant messaging (Lundy & Drouin, 2016). Higher levels of social anxiety also predict positive responses to questions such as 'I am worthless offline, but online I am someone' in a sample of massively multiplayer online gamers, with 25.6% of variance explained (Cole & Hooley, 2013). Martončik and Lokša (2016) found that World of Warcraft players reported significantly less social anxiety in their fictional online world than in the offline world, with 40% of variance in social anxiety explained by world type.

It is well established that the online delivery of learning activities is pedagogically promising, because it is based on a more self-directed and student-centred paradigm, and through encouraging deeper learning (e.g., Ituma, 2011; Robinson & Hullinger, 2008). Importantly, Ituma found that students thought that online learning activities were a valuable supplement to traditional learning. From a practical perspective, online learning activities offer additional benefits for students, such as ease of access to assessment feedback (Grieve, Padgett, & Moffitt, 2016), as well as flexibility in terms of when the work is undertaken, allowing students a bespoke timeframe in which to complete learning tasks (Kemp & Grieve, 2014).

However, to date, no empirical examination of the applicability of the social compensation hypothesis in the context of online and offline learning has been undertaken. Given the prevalence of social anxiety in university students (Dell'Osso et al., 2014), this omission represents a critical gap in the literature. More information is needed so that educators can take better advantage of the benefits that online delivery of learning activities provides. For example, might more online options make it easier for individuals who feel less confident in traditional, face-to-face learning activities to enjoy their learning experience more? What special considerations might help to enhance curriculum design? Our research sought to address this gap, by explicitly investigating for the first time whether there is evidence to support the social compensation hypothesis in online and offline learning.