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Module Co-ordinator: Dr. Judi Pettigrew

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Can the 2:1 model be implemented effectively into practice placements across allied health disciplines?

Practice education is a crucial component in the education of health professionals as it provides the development and practice of expert skills. In supporting this professional development, practice education models are utilised within placements. The 2:1 model is one such education model that has been investigated and utilised on an international level within practice placement across allied health disciplines. It comprises of one practice educator supervising two students on a practice placement. The aim of this systematic literature review was to examine the qualities of the 2:1 model and to establish its application across allied health practice placements.

A computer- based literature search was conducted using the electronic databases CINAHL, AMED, Medline; secondary sources included Google scholar, hand search of relevant journals and reference lists. Twenty nine studies met the inclusion criteria for further review. The studies were analysed using the McMaster qualitative and quantitative critiquing tool. Much of the literature was observed to identify advantages and disadvantages of the model, and appeared consistent across the disciplines. However, the representation of various allied health disciplines in the literature was limited and therefore interpretation of the findings should be taken with caution. Overall, the results regarding the effectiveness and superiority of the 2:1 model over other practice education models were inconclusive. There is a necessity for extensive research to be carried out across a range of allied health disciplines to inform the delivery of practice education that is founded on evidence based practice.

Keywords: 2:1 model, practice education, practice placement.

Introduction

Practice education is a crucial component of education in health disciplines such as occupational therapy, physiotherapy, dietetics and speech and language therapy (Lawrie and Polglase 2012; Rose and Best 2005). It can be described as the process which comprises of collaboration between the student and the practice educator, and must be accomplished to meet professional standards (Aiken et al 2001; Alsop and Ryan 1996; Duncan and Lorenzo 2006). It provides students the opportunity to gain

experience that is essential for furthering educational and professional development. According to the world federation of occupational therapists, students must complete 1000 hours of practice education in order to achieve qualification (Hocking and Ness 2002). This is similar to the requirements for physiotherapy and speech and language therapy students.

Practice education is essential in the development of professional behaviour and is undoubtedly an indispensable tool in the learning process (Bonello 2001). It provides students with the knowledge, skills and competency to join the workforce (Hodgetts et al 2007). Higher Education Institutions utilise different ways for students to experience positive practice placements through alternative education models; such being the 2:1 model (Baldry Currens 2003). Students can collaboratively develop the skills needed for clinical reasoning and competency (Benner 1982; Ladyshevsky 2002). Lincoln and McAllister (1993) assert that peer learning is a process that encourages self-direction, problem-solving and reflection promoting clinical independence.

Allied health disciplines have long trusted the traditional 1:1 model of education however the evolving healthcare system has demonstrated that this is not a feasible option (Fisher Savin-Baden 2002a). Requirements upon entering the healthcare system are of a high standard and graduates are expected to exhibit distinct quality skills. Although the 2:1 model is frequently identified as a practical solution to placement shortages (Huddleston 1999a), it undoubtedly has other merits that warrant its application as a viable practice education model. This systematic literature review examined the current research on the 2:1 model and ascertained what health disciplines are utilising the model within practice education. This review also explored the model's relevance across all allied health disciplines.

Research Question & Aims

Can the 2:1 model be implemented effectively into practice placements across allied health disciplines?

The aim of this research was to obtain descriptive information regarding the 2:1 model and its utilisation within practice education across allied health disciplines. It explored the advantages and disadvantages the 2:1 model affords on practice placement through the perspectives of both the practice educator and the student. The study also established the future requirements and development needed to implement the 2:1 model efficiently across allied health disciplines.

Methodology

A systematic review is different to that of a traditional review as it contains a rigorous search and documented trail of how literature was retrieved and examined under the inclusion and exclusion criteria (Bowling 1997; Jesson et al 2011). This process generates conclusions that can be utilised to guide practice as they are evidence based (Klassen et al 1998; Booth et al 2012). Rationale for a systematic literature review included being able to effectively incorporate existing information, and establish its consistency (Egger and Davey Smith 2001). A systematic review was considered the most suitable approach as it reduced the possibility of bias, and conclusions could be utilised with greater confidence to guide practice within allied health disciplines (Petticrew and Roberts 2006).

Each article was appraised in relation to the inclusion and exclusion criteria, methodological strength and approach (Bradley and Law 2008). The McMaster critiquing tools (Law et al 1998; Letts et al 2007) were utilised during the study, which allowed uniformity throughout the systematic literature review. Utilising the tools, enabled literature to be dissected comprehensively and determine its value for future practice as they are accompanied by succinct guidelines. The McMaster tools were selected over other critiquing tools as they were deemed intelligible and the tools had been utilised before. The McMaster tool has been revealed to be more critical in establishing credibility, and offers better transferability of findings (Booth et al 2012).

The search strategy was predominantly computer based, employing Cinahl, Medline and AMED databases. The key words used for the search included; “*2:1 model*”, “*1:2 model*”, “*collaborative model*”, “*peer learning*”, “*collaborative learning*”, “*dietetic student*”, “*podiatry student*”, “*occupational therapy student*”, “*physiotherapy student*”, “*social work student*”, “*psychology student*”, “*speech and language*”

therapy student”, “*practice education*”, “*clinical education*”, “*clinical placement*”, “*practice placement*”, and “*fieldwork education*”. In addition, secondary sources such as Google scholar, hand search of relevant journals, reference lists, bibliographies, grey literature, published books and consultation with an expert on the 2:1 model was incorporated to seek further studies. The published articles gathered were initially reviewed to identify if they met the inclusion criteria.

Table 1: Table of Inclusion Criteria

Inclusion Criteria	Exclusion Criteria
<ol style="list-style-type: none"> 1. The articles have to be sourced from allied health disciplines (occupational therapy, physiotherapy, speech and language therapy, dietetics, podiatry, social work and psychology). 2. The 2:1 model must be the primary focus of the study. 3. Include both qualitative and quantitative approaches relating to the 2:1 model. 4. Perspectives from both practice educators and students within the disciplines. 5. The studies were published from 1980 to present to obtain a full reflection of the investigation of the 2:1 model. 	<ol style="list-style-type: none"> 1. If the research paper received poor rating after the critical appraisal. 2. Research on other practice education models.

Findings

Twenty nine articles that appeared in the search strategy had a direct relevance to the 2:1 model. The majority of the studies that met the inclusion criteria utilised qualitative methods (Baldry Currens 2003; Baldry Currens and Bithell 2003; Bartholomai et al 2007; Blakely et al 2009; Bonello 2001; Claessen 2004; Dawes and

Lambert 2010; Fisher Savin-Baden 2002a, Fisher Savin-Baden 2002b; Gallagher and Cahill 2008; Huddleston 1999a; Huddleston 1999b; Kell and Owen 2009; Martin and Edwards 1998; Martin et al 2004; Miller and Murren 1995; Moore et al 2003; Morris and Stew 2007; O'Connor et al 2012; Steele Smith and Armstrong 2001; Tiberius and Gaipman 1985). Four studies adopted quantitative methods (DeClute and Ladyshevsky 1993; Ladyshevsky 1995; Ladyshevsky 1998; Sheepway et al 2011). Seven articles used a post-test method with three from the discipline of physiotherapy (Baldry Currens and Bithell 2003; Morris and Stew 2007 and Triggs Nemshick and Shepard 1996), two from occupational therapy (Martin and Edwards 1998 and Rodger et al 2009), one from speech and language therapy (Claessen 2004) and one which examined all three disciplines (Dawes and Lambert 2010). Rodger et al (2009) employed both pre/post surveys for practice educators and students on practice placement.

Four prospective cohort studies met the inclusion criteria in which participants were followed over a period of time to determine the effectiveness of the 2:1 model on practice placement (Blakely et al 2009; Martin et al 2004; Moore et al 2003; Tiberius and Gaipman 1985). DeClute and Ladyshevsky (1993) carried out a retrospective study in which participants were part of an earlier study exploring the effectiveness of the 2:1 model. Ladyshevsky et al (1998) measured the productivity of both the practice educator and the students using the Clinical Education Quality Audit (CEQA) tool, which had previously been pilot tested on two occasions with data being analysed through CEQA software (Ladyshevsky and Barrie 1996 cited in Ladyshevsky 1998). Roberts et al (2009) proposed a new collaborative model to address shortages in practice placement for dietetic students utilising the principles of the 2:1 model. Three literature reviews met the inclusion criteria (Baldry Currens (2003; Briffa and Porter 2013; Lekkas et al 2007). Two of the studies used a systematic review approach to examine the effectiveness of the 2:1 model (Briffa and Porter 2013; Lekkas et al 2007). Briffa & Porter (2013) directly examined the 2:1 model and its effectiveness within the Speech and Language discipline. It was noted that all of the studies had small sample sizes and literature originated from the UK, USA, Canada, Australia and Ireland.

Figure 1: Themes from the Literature

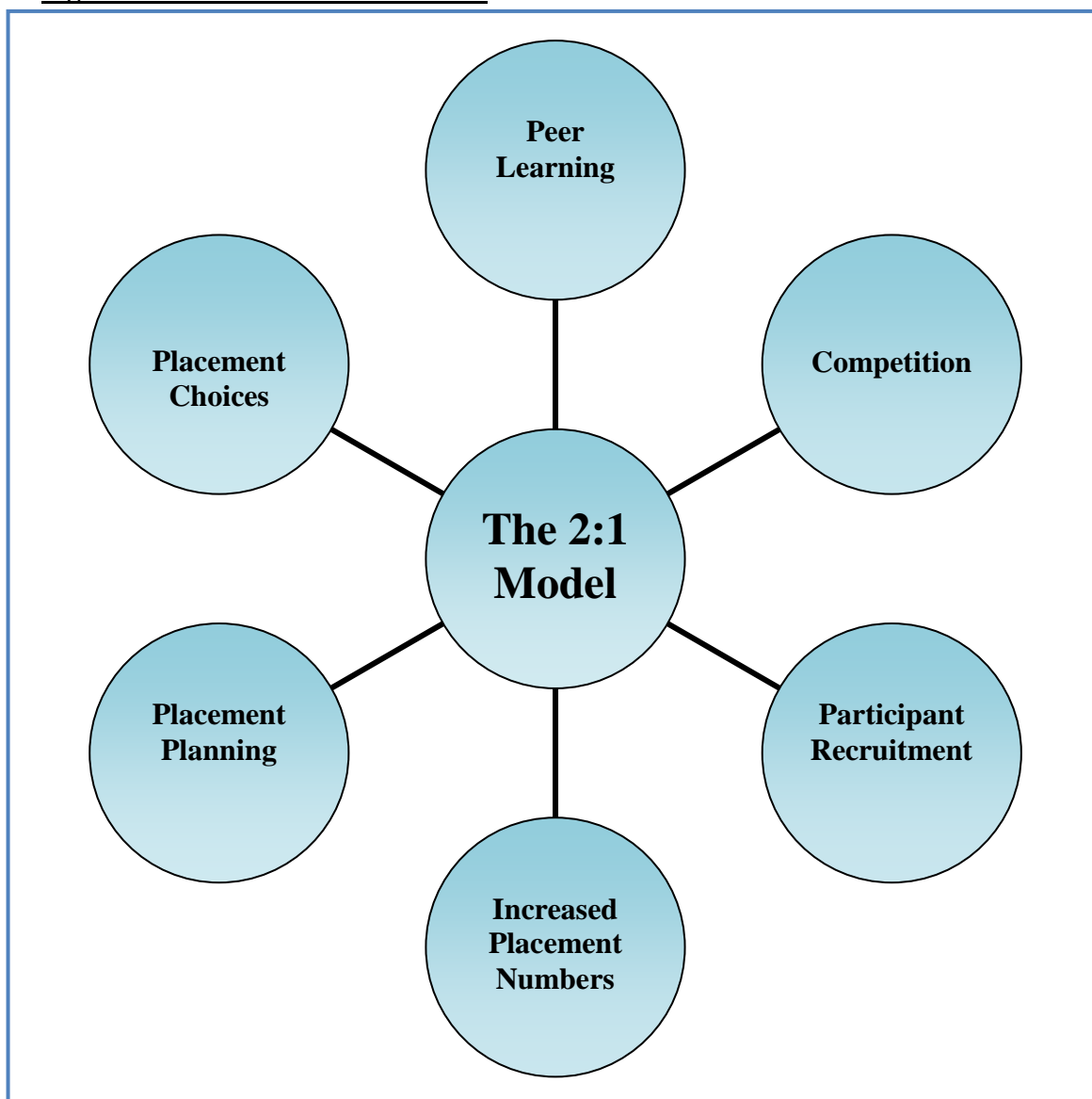


Figure 1 displays the themes that emerged from the literature on the 2:1 model illustrating the advantages and disadvantages of the practice education model.

See **Appendix 1** for detailed description on the studies that examined the 2:1 model in Table 2. 12002089

Peer Learning

The 2:1 model has demonstrated its ability to promote peer learning by encouraging effective communication and autonomous learning, (Baldry Currens 2003; Bartholomai and Fitzgerald 2007; Huddleston 1999a). DeClute and Ladyshevsky (1993) found that the adoption of the 2:1 model displayed a significant difference in student competency skills in comparison to the 1:1 model, as measured by the Evaluation of Clinical Competence (ECC); however it was noted that the practice educators had participated in a previous study regarding implementation issues of the 2:1 model and therefore challenge the findings. Baldry Currens and Bithell (2003) case series, as part of a larger study, revealed that the 2:1 model promoted peer discussion, peer practice and tutoring as highlighted by student participants. This is supported by Miller and Murren (1995) reflective paper which affirms that students actively learn through educational experiences and expand their knowledge through peer collaboration.

Secomb (2008) systematic literature review on peer teaching and learning in the disciplines of nursing, physiotherapy and occupational therapy, demonstrated that peer learning can also provide increased communication, student comfort and confidence. This is supported by Martin et al (2004) prospective study of practice educators and students who identified problem solving and clinical reasoning as a major advantage of the 2:1 model. Martin and Edwards (1998) survey of students identified ability to demonstrate clinical skills and compatibility with other students as essential to the success of the model however this summation was based on a single practice placement.

In comparison, O'Connor et al (2012) qualitative study found dissatisfaction with the 2:1 model through semi-structured interviews among undergraduate and postgraduate students, highlighting lack of independence and autonomy as the main issue. Kell and Owen (2009) retrospective case study utilised the ASSIST inventory tool with a 5-point Likert scale, which revealed that the presence of two or more students on practice placement prevented the likelihood of a deep learning experience. However, the majority of the literature indicates that the 2:1 model offers many advantages in

the development of clinical knowledge and productivity (Baldry Currens 2003; Ladyshevsky 1995). The 2:1 model has the ability to promote collaborative learning across all years of undergraduate and postgraduate education (Baldry Currens and Bithell 2003; Gallagher and Cahill 2008). The 2:1 model certainly steers away from the linear approach of learning that the traditional 1:1 model incorporates (Parker and Kersner 1998) and provides an opportunity for students to develop problem solving and clinical reasoning skills.

Competition

Competitiveness has been recognised as an undesirable factor of the 2:1 model (Baldry Currens 2003; DeClute and Ladyshevsky 1993; Gallagher and Cahill 2008; Tiberius and Gaipman 1985). Moore et al (2003) prospective study discovered that third and final year students expressed concern of personality clashes and competition when paired together. Not being viewed as an individual student, favouritism and inadequate supervision with the practice educator have also been identified as other disadvantages to the 2:1 model that could potentially increase competition between students (Baldry Currens and Bithell 2003; Martin and Edwards 1998; Martin et al 2004; Moore et al 2003).

It is evident from the literature that competitiveness is a potential issue when adopting the 2:1 model. Students must learn to work productively with their peers by expressing respect and restructuring their own internal thought processes (Ladyshevsky 2010). Interestingly, Triggs Nemshick and Shepard (1996) descriptive qualitative field study support the need for students to be matched accurately reflecting experience and academic background to promote the success of the 2:1 model. This is mirrored in DeClute and Ladyshevsky (1993), who reported that students were matched based on compatibility to diminish the risk of performance differences. Overall, competition has been highlighted as major disadvantage to the success of the 2:1 model.

Preparation and Placement Planning

Heavy caseloads are identified as having a negative influence on the learning experience (Triggs Nemshick and Shepard 1996). Comparative studies of the 2:1

model against other practice education models revealed that some practice educators reduced their caseload to ensure provisions were made for individual student supervision when adopting the model (Martin et al 2004; Moore et al 2003). Lekkas et al (2007) supports this finding as their recommendations include the practice educators affording the students equal supervision and feedback to warrant the success of the model. Jung et al (1994) acknowledges that practice educators are reluctant to adopt the 2:1 model with perceptions of increased workload and time constraints. Further understanding and education of the 2:1 model is paramount for both the practice educators and student (Bartholomai and Fitzgerald 2007; Ladyshevsky et al 1998; Morris and Stew 2007; O'Connor et al 2012). Bonello (2001) identified placement planning and preparation as a neglected area in practice education. Fisher and Savin-Baden (2002b) survey indicated that occupational therapists identified unmet education needs as a barrier to placement provision. Interestingly, their study revealed that less than half of their representatives in the study were qualified practice educators.

Much of the literature supports the need for practice educators to receive extensive tutoring in order for the model to work successfully within practice (Baldry Currens and Bithell 2003; Morris and Stew 2007; Parker and Kersner 1998; Tiberius and Gaipman 1985). This contradicts Dawes and Lambert (2010) interpretive study, as the participant's first experience of the model was in response to short notice requests from Higher Education Institutions to facilitate more students. The literature suggests that practice educators who have not received education on the model have demonstrated increased stress levels (Baldry Currens and Bithell 2003; Dawes and Lambert 2010).

Increase of Placement Numbers/Placement Choices

Clinical settings are often challenged by staff shortages and limited resources (Ladyshevsky 1995; Steele-Smith and Armstrong 2001). This coincides with Fisher and Savin-Baden (2002b) participatory action study which identified inadequate office space, heavy caseloads, staffing problems and lack of confidence in practice educators to take students were barriers to placement provision. Huddleston (1999a) review of practice education models found that the 2:1 model provides an alternative

strategy to assist the increasing number of students seeking quality learning experiences. Similarly, Blakely et al (2009) prospective study verified the 2:1 models suitability in facilitating more practice placements. Much of the presenting literature supports the argument that the adoption of the 2:1 model will facilitate a greater number of placement options for students (Baldry Currens and Bithell 2003; Fisher and Savin-Baden 2002a; Tiberius and Gaipman 1985).

Students have reported dissatisfaction with the shortage of learning opportunities afforded to them (Dawes and Lambert 2010; Martin and Edwards 1998; Martin et al 2004; Moore et al 2003; Roberts et al 2009; Triggs Nemshick and Shepard 1996). Many of the studies were conducted in acute settings such as an orthopaedic, neurology, cardio-respiratory and outpatient departments indicating the lack of placement choices (Baldry Currens and Bithell 2003; Blakely et al 2009; Dawes and Lambert 2010; DeClute and Ladyshevsky 1993; Moore et al 2004). Interestingly, some of the studies informing occupational therapy practice did utilise the 2:1 model in settings such as paediatrics, community mental health, primary care and charity organisations (Claessen 2004; Gallagher and Cahill 2008; O'Connor et al 2012).

Participant Recruitment

It was noted that some of the studies were presided by Higher Education faculty members (Gallagher and Cahill 2008; O'Connor et al 2012), and subsequently may have influenced the results due to an invested interest in the model and close links to student participants. It could be contended that students may have felt obliged to give positive feedback regarding the use of the 2:1 model. Similarly, some of the studies indicated participants had volunteered to partake in the studies questioning the quality of the findings as their preferences could have been in favour or against the model (Baldry Currens and Bithell 2003; DeClute and Ladyshevsky 1993; Gallagher and Cahill 2008; Martin et al 2004; Moore et al 2003). The studies reviewed, demonstrated a significant risk of researcher bias and lack of protection for students in relation to confidentiality and anonymity (Martin and Edwards 1998; Roberts et al 2009; Tiberius and Gaipman 1985). This is clearly evident in Claessen (2004) pilot project with two international students as they were already familiar with one of the practice educators, who authored the study.

Interestingly, convenience sampling was the common method in recruiting participants (Baldry Currens and Bithell 2003; Dawes and Lambert 2010; DeClute and Ladyshesky 1993; Gallagher and Cahill 2008; Martin et al 2004; O'Connor et al 2012; Sheepway et al 2011). This method of sampling will provide the researchers with the insights they require in regards to the use of the 2:1 model. However, it could be contended that this method of recruitment may increase the risk of bias.

Interestingly, some studies had utilised an inclusion criteria to define particular attributes that would yield information rich participants as described by the researchers (Dawes and Lambert 2010; O'Connor et al 2012; Triggs Nemshick and Shepard 1996). This contrasts some of the studies which fail to elaborate on the selection process participants (Blakely et al 2009; Claessen 2004).

Discussion

This systematic review has revealed that the utilisation of the 2:1 model within various allied health disciplines is under researched. Disciplines such as podiatry, psychology and social work failed to reveal relevant research regarding the 2:1 model, which questions if the model is being adopted within their practice education framework. These disciplines were relevant during the initial search as they are due to register with CORU (2014), Ireland's first multi profession health regulator. The literature reviewed predominantly originated from the disciplines of physiotherapy and occupational therapy, demonstrating the limitation of the findings. Interestingly, Roberts et al (2009) was the only study from dietetics to identify the 2:1 model as a plausible model that could be incorporated successfully into their practice education in an alternative way.

According to the Hunt Report (2011) a high quality experience of practice education will prepare students with the essential attributes needed for qualification.

From an occupational therapy perspective, the 2:1 model has merits that warrants its adoption within practice education which include peer support, self-confidence, clinical reasoning skills and collaborative learning (Aston and Molassiotis 2003).

Clinical reasoning is a fundamental process within occupational therapy forming the foundation of all therapeutic practice (Alsop and Ryan 1996). Clinical reasoning

underpins problem solving in which a skilled therapist can pinpoint the problem, identify the desired outcome, implement an action plan and evaluate (Hagedorn 2001; Paterson and Summerfield-Mann 2006). Neistadt (1996) asserts that students lack the ability to problem solve independently as they are still novices, however the 2:1 model can provide an opportunity for students to develop this skill through the formulation of challenging questions to practice educators and discussions with peers (Martin et al 2004). The 2:1 model undoubtedly encourages the learning process in which students stimulate cognitive growth (Topping 2005) and in turn strengthens the skills needed for entry into the evolving healthcare system (Rodger et al 2007).

However, students should be conscious of over-dependence on peers as this could impede their ability to develop clinical reasoning and problem solving skills independently (Baldry Currens 2003). Strategies to prevent this occurrence include setting out clear individual learning contracts (Martin and Edwards 1998) and delegation of individual caseloads (Baldry Currens and Bithell 2003; Ladyshevsky 1995; Ladyshevsky et al 1998; Triggs Nemshick and Shepard 1996). Heavy caseloads were highlighted as having a negative impact on the learning process through the 2:1 model (Triggs Nemshick and Shepard 1996); however this indicator was not reflected within other studies (Claessen 2004; Dawes and Lambert 2010; Martin and Edwards 1998; Martin et al 2004; Moore et al 2003; Roberts et al 2009).

In consideration, student preference may determine the success of the 2:1 model as O'Connor et al (2012) found students preferred the learning opportunities associated with the 1:1 model as it displayed their independence and autonomy as clinicians. This is supported in other studies with students identifying competition and clash of personalities as a challenge with the 2:1 model (DeClute and Ladyshevsky 1993; Martin et al 2004; Moore et al 2003). It would be interesting to note the comparison of undergraduate and postgraduate students in relation to peer collaboration. It could be assumed that post graduate students will have had previous work experiences that will certainly bring a sense of maturity and ability to work collaboratively (Nihill and Gallagher 2007). The findings of this systematic review indicate unquestionably, that students should receive education and understand the learning opportunities of the 2:1 model (O'Connor et al 2012). Topping (2005), assert students should avoid

comparison to fellow peers as this deflects from the distinct and unique learning path for each individual. Students should identify their learning style and inform their practice educator so optimal learning experiences can be accommodated (Titiloye and Scott 2002). Interestingly, none of the studies reviewed depicted how the 2:1 model was implemented by the practice educators. Two studies provided recommendations on how to successfully implement the 2:1 model but fail to offer a guiding framework for practice educators (Baldry Currens 2003; Gallagher and Cahill 2008).

The findings of this research indicate that the implementation of the 2:1 model requires detailed planning and preparation (Currens and Bithell 2003; Dawes and Lambert 2010; Martin et al 2004). Kirke et al (2007) and Rodger et al (2007) stipulate that Higher Education Institutions have a responsibility to establish the requirements of practice placements within their respective programs. This contradicts Moore et al (2003), who revealed that students felt placements were a success despite preparation; however this finding was undoubtedly in isolation from the majority of literature. Surprisingly, despite the emphasis on placement planning and preparation, only some of the studies documented participants receiving education prior to the use of the model (Blakely et al 2009; Martin et al 2004; Moore et al 2003; Roberts et al 2009). Other studies failed to discuss what education or refresher course practice educators had received prior to the research, despite previous use of the model (Claessen 2004; Dawes and Lambert 2010; Gallagher and Cahill 2008; O'Connor 2012). Walker & Openshaw (1994) assert that completing a supervisor course will undoubtedly improve practice.

Practice educators have been noted to view the 2:1 model in a negative light, with perceptions of increased workload, limited resources, staff shortages and lack of support as common reports (Fisher and Savin-Baden 2002a; Stiller et al 2004). This can be related to newly qualified staff who may exhibit reluctance to take students with feelings of under qualification to provide learning opportunities (Bartholomai and Fitzgerald 2007). Similarly, experienced practice educators may also be reluctant to conform to change if they have been familiar with the traditional 1:1 model and its attributes. Practice educators however have expressed concern that the 1:1 model can cause students to become too dependent, restricting their ability to become independent clinicians (Martin et al 2004). Collaborative learning has been found to

weaken the instructive teaching style of the 1:1 model as it encourages the student to become self-directed in their approach to learning (Parker and Kersner 1998).

The attitude of the practice educator will be crucial in the applicability of the 2:1 model. This reinforces the need for newly qualified clinical educators to welcome the 2:1 model into practice and further their professional development. CORU (2014) acknowledge health care professionals have a responsibility to maintain their professional knowledge, skills and competency. Deciding to embrace the 2:1 model within practice will strengthen the currency of practice educators CPD portfolio. This is pertinent to allied health disciplines in Ireland who are awaiting the imminent introduction of registration. As well as continuing with professional development, Higgs and McAllister (2007) emphasise that practice educators require the skill to manage their role in facilitating students and client care in cohesive manner.

Overall, the sample sizes of studies critiqued were small with student participants originating from the same academic year. This unquestionably fails to imitate the relevant population across allied health disciplines. Small samples sizes disputes the reliability of the findings throughout the literature. Also, with research predominantly emerging from physiotherapy and occupational therapy, it questions the transferability of findings onto other allied health professions (Kielhofner 2006). It was noted that the majority of the studies were executed on a single placement experience with methodological approaches varying in design; therefore, the quality of the research was in-definitive across the findings. For example, researcher affiliation was a factor in Claessen (2004) disputing the credibility of their findings. The majority of the studies failed to manage the potential of research bias and explain how anonymity was upheld (Baldry Currens and Bithell 2003; DeClute and Ladyshevsky 1993; Martin et al 2004; Moore et al 2003).

Similarly, studies conducted by higher education faculty members (Gallagher and Cahill 2008; O'Connor et al 2012) question the true quality of their findings as students may have felt obliged to provide positive feedback on the 2:1 model. Most of the research reviewed, indicated that practice educators volunteered or agreed to partake in the studies regarding the 2:1 model, which could indicate that practice educators may have had frequent use or positive experiences of the model (Baldry

Currens and Bithell 2003; DeClute and Ladyshevsky 1993; Gallagher and Cahill 2008; Ladyshevsky 1995; Martin and Edwards 1998; Martin et al 2004; Moore et al 2003; O'Connor et al 2012). Predisposition to the 2:1 model will undoubtedly query the results and its reflection on the related population, and consequently the Hawthorne effect cannot be discounted in these studies (Sarangi 2010). Findings would also indicate that the context of the placement is crucial to the success of the model. Physiotherapy research has indicated that the 2:1 model is predominantly used within acute settings such as orthopaedics, neurology, and cardio-respiratory (DeClute and Ladyshevsky 1993; Ladyshevsky 1995; Martin et al 2004). In contrast, the research from occupational therapy reported placements within community settings such as mental health and paediatrics (Gallagher and Cahill 2008). In consideration, it could be argued that some clinical sites may not have the structure to support the use of the 2:1 model for reasons such as caseload availability (Martin et al 2004; O'Connor et al 2012).

Evidence to indicate that the 2:1 model would be effective across all allied health disciplines is limited with the literature failing to support the model over others for. However, it should be noted that within the literature there is a recurring validation of the advantages the 2:1 model offers (Baldry Currens and Bithell 2003; Ladyshevsky 1998; Triggs Nemshick and Shephard 1996). This systematic literature review has emphasised the need for a more thorough and rigorous research in investigating the effectiveness of the 2:1 model across allied health disciplines. Conducting more comparative studies may determine the 2:1 models transferability across allied health disciplines.

Conclusion/Recommendations

From this systematic review, it is not possible to make a conclusive assertion that the 2:1 model can be implemented successfully into practice education across the various allied health disciplines. The findings are consistent with those that have emerged in previous studies outlining the advantages and disadvantages of the 2:1 model. The model undoubtedly has merits for implementation through enhanced learning

opportunities for students, who prepare for entry into their chosen professions. However, certain conditions are essential to ensure the success of the model and this includes comprehensive planning and preparation for both the practice educator and the student. Creating a standardised framework to guide the implementation of the 2:1 model should be incorporated into the education that is provided for practice educators so it can be used as a reference guide. This will undoubtedly assist the engagement of the 2:1 model by both newly qualified and experienced practice educators.

Practice educators should be aware of the learning opportunities they can provide for students before undertaking the task of setting separate learning contracts, objectives and delegation of caseload. The practice educator must demonstrate the ability to deal with the possibility of competition or personality clashes between students in a timely and professional manner. It is imperative that more extensive research is carried out across a number of allied health disciplines to determine the 2:1 model's applicability. Research conducted should also explore and compare the use of the 2:1 model in a variety of settings which could include the acute setting, community, paediatrics and mental health. This will determine the true effectiveness of the model with practice education. The need to explore the 2:1 model across allied health disciplines is essential in the progression at which practice education is being provided for students.

Following the findings of this systematic literature, it is recommended that Higher Education Institutions should continue to provide education on the 2:1 model so practice educators can make an informed decision when adopting the model. This could be achieved by devising a standard template outlining the protocol in adopting the 2:1 model within practice placements. Potentially, this could include concepts such as learning styles, peer learning, joint and individual supervision, individual learning contracts and individual and collaborative clinical experience. Undoubtedly, this would improve the reputation and quality of practice placements. Higher Education Institutions should execute regular audits regarding the education they provide for both practice educators and students to best inform practice, and ensure its coherence with the current literature available. This could be achieved by utilising an audit tool to measure the effectiveness of the education they provide so that results are evidence based.

Extensive research on the 2:1 model should be carried out by considering the execution of a large scale longitudinal study. Participants should be from both undergraduate and postgraduate programs to determine how similar or different their experience of the model is. Conducting a multi-site whole cohort study should be considered as it would reveal the success of the 2:1 model within a variety of clinical settings. Pondering the emergence of themes in this study, further research should contemplate the utilisation of a tool to measure issues such as competition, personality clashes and lack of individual supervision among students. This will inform the various allied health disciplines that the practice education model provided is founded on strong evidence. All practice placements that provide the 2:1 model should ensure that the placement can provide the learning opportunities for both students and that the practice educator feels competent in facilitating this.

Encouraging practice educators to adopt the model within practice may be promoted by awarding additional CPD credits for student supervision. This will also demonstrate the continuation and improvements in the standard of care provided by allied health disciplines. From an occupational therapy perspective, the profession should continue to utilise the 2:1 model within practice education as it provides students with the ability to develop their clinical reasoning skills. Emphasis should be placed on careful planning and preparation so practice educators can effectively implement the model and reduce the negative perceptions that have been associated with the model.

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Appendix One

Table 2: Characteristics of the research studies that investigated the effectiveness of the 2:1 model within practice placements with participants

Reference	Allied Health Profession Discipline	Country	Study Design	Study Sample Sizes	Clinical Setting
Blakely et al (2009)	Occupational Therapy	UK	Prospective Study	Clinical Educator- 1 Students- 2	Orthopaedics
Baldry Currens & Bithell (2003)	Physiotherapy	UK	Post-test method	Clinical Educator- 29 Students-61	<ul style="list-style-type: none"> • Cardio-respiratory • Orthopaedics • Muscoskeletal • Neurology • Elderly
Bartholomai & Fitzgerald (2007)	Occupational Therapy	Australia	Reflection	Clinical educator-1 Students-9	<ul style="list-style-type: none"> • Inpatient rehabilitation • Outpatient neurology
Claessen (2004)	Speech and Language Pathology	Canada	Post-test method	Clinical Educator- 2 Students-2	Paediatric Day Care Pre-kindergarten class
Dawes & Lambert (2010)	Occupational Therapy Physiotherapy Speech and Language Pathology	UK	Post-test method	Clinical Educator- 9 (This is the number of clinical educators that used the 2:1 model) 4 clinical educators decided to not to use the model.	<p><i>In occupational therapy:</i> Community, acute paediatric, adult mental health, inpatients.</p> <p><i>In Physiotherapy:</i> Community, outpatients, acute respiratory care, orthopaedics, paediatrics.</p> <p><i>In Speech & Language Therapy:</i> Community paediatrics, hearing</p>

					impairment service, adult acute medical.
DeClute & Ladyshefsky (1993)	Physiotherapy	Canada	Retrospective Study	Clinical Educator- 19 Students- 28	Orthopaedics Neurology Cardio-respiratory
Fisher and Savin-Baden (2002b)	Occupational Therapy	UK	Participatory Action Research	45 Occupational therapists responded to the survey (included OT service managers and managers in social services, independent practitioners). There were 17 focus groups of OTs (all of mixed grade/ settings). Five OT's were individually interviewed. Three OT'S were interviewed over the phone (had completed the questionnaire).	Such areas of expertise included: <ul style="list-style-type: none"> • Independent practitioner • Acute hospital setting • Acute mental health • Charity organisation • Community health
Gallagher and Cahill (2008)	Occupational Therapy	Ireland	Post Test Method	Clinical Educators-5	•3 -from an inpatient Hospital for Older people.

					•2- from Children's Services.
Huddleston (1999b)	Occupational Therapy	UK	Report	Total of 137 participants which included: students (occupational therapy, physiotherapy, dietetics), clinical educators (including and newly qualified clinicians)	Not specified
Ladyshevsky (1995)	Physiotherapy	Canada	Comparative-Quantitative Study	Clinical Eduactors-8 Students- 16	Acute cardio-respiratory setting
Ladyshevsky et al (1998)	Physiotherapy	Australia	Comparative-Quantitative Study	Clinical Educator- 8 Students- 16	Not specific
Martin & Edwards (1998)	Occupational Therapy	UK	Post Test Method-Survey	Students- 14	Acute Psychiatry
Martin et al (2004)	Occupational Therapy	UK	Prospective Study	Clinical educators- 6 Students- 2 (2:1) and 6 (3:1)	2:1 model was used in Community Mental Health services.
Moore et al (2003)	Physiotherapy	UK	Prospective Study	Clinical Educator- 8 Students- 48	<ul style="list-style-type: none"> • Outpatients (general practice & Hospital) • Hydrotherapy • Respiratory • ICU • Acute Elderly • Orthopaedics

Morris & Stew (2007)	Physiotherapy	UK	Post Test method	Clinical Educator- 13 Students- 18	Not specified
O'Connor et al (2012)	Occupational Therapy & Physiotherapy	Ireland	Post Test method	Clinical Educators-8 Students- 12	Occupational Therapy: Community Mental Health, Paediatrics, Inpatient rehabilitation. Physiotherapy: Primary Care, Acute Hospital, Inpatient rehabilitation, Paediatrics.
Rodger et al (2009)	Occupational Therapy	Australia	Pre/post Test method	Clinical Educator- 2 Students-4	<ul style="list-style-type: none"> • Mental health rehabilitation service • Acute Mental. • Health in- and outpatient Occupational Therapy Service
Sheepway et al (2011)	Speech & Language Pathology	Australia	Post Test Method-Survey	University personnel involved in management or development of practice education programs on an	Not specified

				international basis	
Tiberius & Gaipman (1985)	Occupational Therapy	Canada	Prospective Study	Clinical Educators- 5 Students- 10	Not specified
Triggs Nemshick & Shepard (1996)	Physiotherapy	USA	Prospective Study	Clinical Educators-3 Students-6	<ul style="list-style-type: none"> • Acute Inpatients • Outpatients • Orthopaedics