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Bhuvan Israni
Technological University Dublin, bhuvan.israni@tudublin.ie

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Reverse Mentoring (RM) an effective way to advance the principles of equality, diversity, and inclusion across universities: A Systematic Review of Literature (SLR)

Bhuvan Israni

Technological University Dublin, City Campus

bhuvan.israni@TUDublin.ie

Abstract

Purpose: The purpose of this systematic review of the literature (SLR) was to draw attention towards the various benefits as well as the challenges associated with the adoption of reverse mentoring models in various universities. In addition to this, this SLR will help academicians to understand the perspective of students so as to advance the principles of equality, diversity and inclusion across universities with the potential to help make universities more imaginative and equitable environments for one and all. This paper also proposed to outline future research on this topic, which is around how the organisational culture can play a pivotal role in supporting the reverse mentoring dyads.

Design/methodology/approach – A Systematic Literature Review (SLR) based on reflexive thematic analysis was conducted; review questions and key search terms were formed. Three academic databases were used, and the initial search yielded 130 papers. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Page et al., 2021) were used for screening the papers and 10 papers were selected based on inclusion and exclusion criteria. The Crowe Critical Appraisal Tool (CCAT) was used to assess the quality of the resultant papers, and all were included in the review (Crowe and Sheppard, 2011).

Findings – The articles included in this systematic literature review on reverse mentoring shed light on how reverse mentoring is effective in bridging the technology divide between intergenerational groups and can promote diversity and inclusion. Reflexive Thematic Analysis by Braun and Clarke (2021) helped to condense the major findings into two themes and eight

subthemes. Along with the benefits, some key challenges of reverse mentoring were discussed in the analytical themes; some of the challenges that were discussed include but are not limited to time constraints and less experienced mentors.

Originality/value–As per the knowledge of the researcher, this is the first-ever systematic review of literature in the field of reverse mentoring, which has followed the PRISMA guidelines to screen papers between January 2007 till August 2023. Findings from this review would help academicians and practitioners to understand the various benefits as well as challenges of implementing the reverse mentoring model across universities. It would help academicians to address the barriers to RM, thereby promoting the values of equality, diversity, and inclusion across universities.

Paper type: Systematic Literature review

Keywords: Diversity, Equality, Inclusion, Intergenerational groups, Reverse Mentoring (RM)

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Introduction

Reverse mentoring was introduced by former General Electric (GE) CEO Jack Welch in the late 1990s (Finkelstein et al., 2003). Reverse Mentoring (RM) relies on the reversal of the conventional roles of mentee and mentor and the exclusion of the mentorship model as a hierarchy or traineeship (Peterson and Ramsay, 2021). Chaudhuri and Ghosh (2012) conceptualised Reverse Mentoring (RM) as a strategy wherein less experienced employees (mentors) are matched with more seasoned counterparts (mentees) for the purpose of sharing insights, with the initial knowledge transfer stemming from the junior employee.

With the influx of online education and increased accessibility of the internet in the early 2000s (Chaudhuri et al., 2022), many seasoned tenured faculty found themselves at a crossroads when they were being asked to teach online, which was negating their existing classroom pedagogy. Moore (2001) confirmed that if faculty members are sufficiently supported with resources, they are often not unwilling to use the technology in their classrooms. With this knowledge, Alvarez et al. (2005), with her colleagues, became the pioneers in trying out reverse mentoring in an educational setting at the University of Delaware and Bowling Green State University, where they were being reverse mentored by technologically literate graduate students in English who helped them develop online courses for the first time. So, traditionally, reverse mentoring has been acknowledged as a valuable approach for addressing the generation gap, focusing on enhancing the technological proficiency of senior employees through targeted skill enhancement interventions (Kaše et al., 2019; Murphy and Adams, 2005).

Reverse mentoring found its first application in the field of science and was published in a health-related journal. Today, it has sprawled into multiple disciplines and fields, the most prominent being the disciplines of education and management. Reverse mentoring has been used to encourage inclusivity between multiple generations in relation to ethnicity, gender and culture (Chaudhuri et al., 2022).

Purpose and Review Question

The purpose of reverse mentoring, which originally had a narrow technology focus, has widened over the years (Murphy, 2012). One of the more compelling and optimistic applications of reverse mentoring is to utilise it to challenge the existing condition around diversity and inclusion. Peterson and Ramsay (2021) stated huge positive effects on both groups, the senior leaders who were paired with Asian, Black, and Minority Ethnic students in universities. Besides solving issues shrouding around diversity and inclusion (Peterson and Ramsay, 2021), many organisations are also reaping the benefits of reverse mentoring (RM) in solving a variety of organisational problems such as employee attrition, communication issues and employee engagement (Chaudhuri and Ghosh, 2012; Murphy and Adams, 2005). Businesses that use RM as a training and human capital retention tool include Cisco, Hewlett-Packard (HP), The Hartford, Don Baer, PwC, Proctor and Gamble, General Motors, Unilever, Deloitte and Touche, Wharton School of Business at the University of Pennsylvania, and others (Gubler, 2019; Peterson and Ramsay, 2021). Although reverse-mentoring is an internationally well developed and a frequently used method, it is mainly used by private enterprises and corporations (Stepancik and Permoser, 2017).

The purpose of the current systematic review was to analyse and understand as to how the reverse mentoring model is being applied in higher education institutes to promote diversity and inclusion, thereby enlisting the various benefits as well as challenges of reverse mentoring. Just like corporates, some higher education institutes are also benefitting from reverse mentoring (Zauchner-studnicka, 2017). Some higher educational institutes do have reciprocal mentoring programmes and use these programmes to support their efforts to promote diversity and inclusion, increase communication and engagement across generations and potentially implement changes in work culture (Morris, 2017). These examples are not systematically organised and this SLR will address this gap as well as discuss the various challenges and benefits of reverse mentoring models.

The primary review questions for the study were as follows:

1. What can we learn from the literature about the reverse mentoring models that are being applied in higher educational institutes?
2. What were the various benefits as well as challenges while implementing reverse mentoring models in higher educational institutes?

Methodology

This research investigated three databases: Academic Search Complete, Academy of Management Learning and Education and Review of Educational Research, as these three databases were found to be most closely associated and relevant to the field of study (Sage, 2023).

Search Strategy

Several papers were searched by their paper titles, abstracts, and keywords in the second week of August, 2023. To search the databases efficiently and to yield relevant quality papers, keywords were generated (Table 1).

Table 1: Main Keywords

(Reverse Mentoring OR Coaching OR Mentorship)
AND
(Impact OR Influence OR Effect)
AND
(Employees OR Staff OR worker* OR Teacher)
AND
(Diversity* OR Inclusion* OR Barrier free environment*)
AND
(Education OR Higher Education Institutes OR Academic OR School Education* OR Educate* OR Train*)

All three databases were searched using the exact keywords and the initial search yielded a result of 130 articles. Table 2 illustrates the search results obtained from each database.

Table 2: Search Results from each Database

S.No.	Database	Search Results (in numbers)
1	Academic Search Complete	37
2	Academy of Management Learning and Education	70
3	Review of Educational Research	23
	Total: n=130	

Selection Criteria

The articles were screened based on well-formed inclusion and exclusion criteria. The inclusion and exclusion criteria applied for literature screening are presented below in a tabular form (Table 3).

Table 3: The inclusion and exclusion criteria applied for literature screening

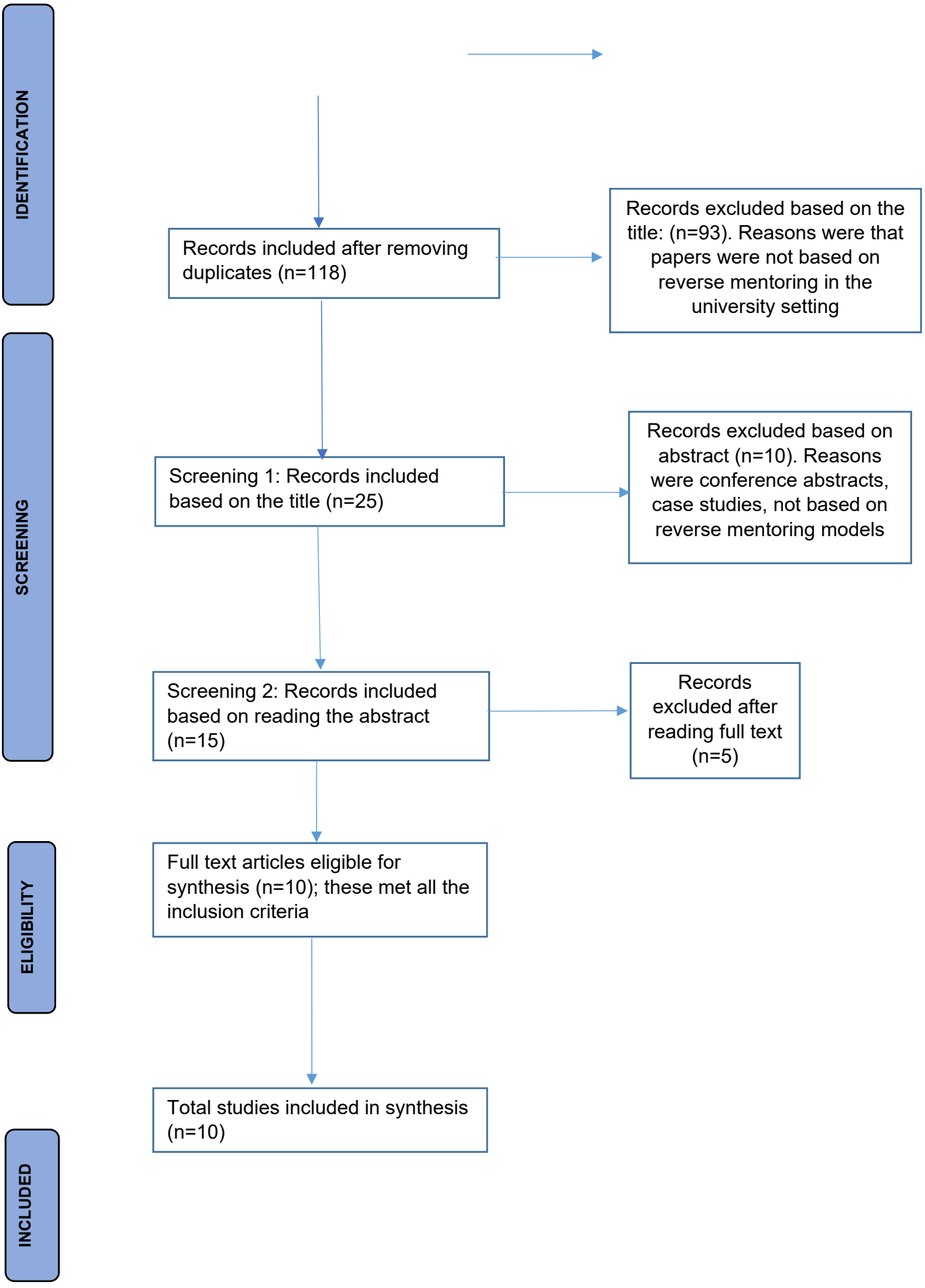
Inclusion Criteria	Exclusion Criteria
Employees who were engaged either in full-time or part-time jobs in the education sector. Students enrolled in either full-time or part-time courses in universities.	Those who were self-employed. Students enrolled in distance/online educational programmes.
Reverse mention programs given in the educational sectors.	Other sectors such as private and public organisations, MNCs, start-up organisations and NGOs, were excluded.
Reverse Mentoring programs given in person or through virtual modalities. Furthermore, reverse mentoring programs which were embedded within multi-faceted programs.	Any program that was not centred around/based on reverse mentoring. Not focused on the educational/university context.
Qualitative papers, theoretical and narrative papers were included	Quantitative studies as well as guides on reverse mentoring, grey literature, and book reviews; non-empirical articles (commentaries, blogs, talks and practitioners' articles), case studies, historical studies and articles from newspapers and magazines were excluded.
Peer-reviewed papers/studies in the English language published in academic journals between January 2007 till August 2023.	Duplicate studies were removed.

Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Page et al., 2021) (refer to Table 4). All the obtained papers (130) were imported to Mendeley. Duplicates were identified by using the 'Checking for Duplicates' function in Mendeley. All the duplicates were removed. Thereafter, screening 1 was done based on reading the title, followed by screening 2, which was based on reading the abstract. Thereafter, full articles were read and finally, 10 papers were selected based on the PRISMA screening and the selection criteria.

Table 4: Prisma Flowchart




IDENTIFICATION
SCREENING
ELIGIBILITY
INCLUDED
Records included after removing duplicates (n=118)
Records excluded based on the title: (n=93). Reasons were that papers were not based on reverse mentoring in the university setting
Screening 1: Records included based on the title (n=25)
Records excluded based on abstract (n=10). Reasons were conference abstracts, case studies, not based on reverse mentoring models
Screening 2: Records included based on reading the abstract (n=15)
Records excluded after reading full text (n=5)
Full text articles eligible for synthesis (n=10); these met all the inclusion criteria
Total studies included in synthesis (n=10)

Crowe Critical Appraisal Tool (CCAT)

Crowe Critical Appraisal Tool (CCAT) was used to assess the quality of the included studies (Crowe and Shepphard, 2011). The scores were given to each paper and none of the 10 papers were excluded based on the scores which were given. This is because several commentators, including Pawson (2006) and Dixon-Woods et al. (2008), pointed out that excluding an entire study on the basis of an appraisal of study quality may not be appropriate.

Study Characteristics Table

The articles included in this literature review on reverse mentoring were summarised according to the title of the paper along with the authors and year of publication, nature of the study and number of participants (n), setting (industry sectors), data collection method, purpose and aim of the study. This is illustrated in Table 5: Study Characteristics Table.

Table 5: Study Characteristics

Title of the paper along with the authors and year of publication	Clarke AJ, Burgess A, van Diggele C and Mellis C (2019) The role of reverse mentoring in medical education: current insights. Advances in medical education and practice: 693-701.
Nature of the study and number of participants (n)	Theoretical paper with no participants
Setting (Industry sectors)	Reverse mentoring in medical education
Data Collection Method	NA
Purpose and aim of the study	This paper aims to discuss the role of reverse mentoring in the health sciences and medical education.
Main Findings	1. The authors of the study were a neurology advanced trainee (AC), two educationalists (AB and CVD) and a paediatric respiratory consultant (CM), all skilled in working across the university and hospital sectors. They proposed that due to the increased utilisation of Information Technology in medical education, reverse mentoring plays a crucial role in both medical education and the field of health sciences. 2. The article discussed the advantages and disadvantages of reverse mentoring. The benefits of reverse mentoring were discussed in detail both for mentors and mentees. 3. The difference between traditional mentoring and reverse mentoring was deliberated.

Title of the paper along with the authors and year of publication	Alvarez DM, Blair K, Monske E and Wolf A (2005) Team models in online course development: A unit-specific approach. Journal of Educational Technology & Society, 8(3): 176-186.
Nature of the study and number of participants (n)	Narrative methodology as the experiences of 2 faculty members and 2 doctoral candidates were noted.
Setting (Industry sectors)	University
Data Collection Method	Interviews
Purpose and aim of the study	Chronicling the possibilities and constraints of implementing a team-development model for online course design and offering guidelines for academic units wishing to adopt similar models.
Main Findings	1. An RM program was made and implemented in which students mentored their professors so that all the professors could develop an online teaching module. 2. After the online RM program was implemented, the benefits of team development and reverse mentoring in the development of online courses were discussed in detail in this paper.
Title of the paper along with the authors and year of publication	Peterson C and Ramsay D (2021) Reducing the gap! Reciprocal mentoring between Black, Asian and minority ethnic (BAME) students and senior leaders at the University of Gloucestershire. Perspectives: Policy and Practice in Higher Education, 25(1): pp.34-39.
Nature of the study and number of participants (n)	Pilot study with semi-structured interviews of 9 student participants (Black, Asian and minority ethnic (BAME) students) and 10 partners, including the Vice Chancellor and two members of the Council.
Setting (Industry sectors)	University of Gloucestershire

Data Collection Method	Semi-structured interviews of all the participants
Purpose and aim of the study	Record the experiences of mentees and mentors engaged in RM programme.
Main Findings	1. All BAME students and senior leaders had an overall positive experience with RM. The students expressed that each of them had gained something distinct from the experience, ranging from academic guidance (such as deciding to pursue a Master's degree) to practical skills for employability (like time management and improving their CV skills). Jointly, they felt the scheme was positive and they were of the opinion that it would greatly improve the experience of future students. 2. All the participants reported the personal benefits of participating in the RM scheme. However, senior leaders perceived it constantly in terms of the enhancement of personal knowledge and awareness of lived experiences. Although gaining personal knowledge was the crucial outcome of the scheme, it was important to ensure that any institutional learning from the scheme was captured, actioned and disseminated. One participant put forth the idea of urging every senior leader involved to pinpoint a specific, actionable step they would take based on their engagement in the process.
Title of the paper along with the authors and year of publication	Morris LV (2017) Reverse mentoring: Untapped resource in the academy? Innovative Higher Education, 42: 285-287.
Nature of the study and number of participants (n)	Theoretical paper with no participants
Setting (Industry sectors)	Academia

Data Collection Method	NA
Purpose and aim of the study	The aim of the study was to understand if there was a role for reverse mentoring in the academy. This study aimed to analyse if reverse mentoring could provide students with opportunities to teach, to reflect on their knowledge, and to practice leadership skills while gaining insight into the academy as a unique educational and social organisation. Furthermore, this study set out to find how universities can engage students to formally mentor those faculty members who are deficient in the use of rapidly changing technologies and evolving social media.
Main Findings	There is a big role and scope of reverse mentoring in academia.
Title of the paper along with the authors and year of publication	Raza A and Onyesoh K (2020) Reverse mentoring for senior NHS leaders: a new type of relationship. Future Healthcare Journal, 7(1): 94. https://doi.org/10.7861/fhj.2019-0028
Nature of the study and number of participants (n)	A qualitative study with two Black and Minority Ethnic (BME) staff and a senior white male director.
Setting (Industry sectors)	Guys' and St Thomas' NHS Foundation Trust in 2018
Data Collection Method	This paper used an assortment of methods, including one-to-one interviews with mentors and mentees, observations of mentees' team meetings and visual inspections of mentees' departments.
Purpose and aim of the study	The Reverse Mentoring for Equality, Diversity and Inclusion (ReMEDI) initiative was introduced at Guys' and St Thomas' NHS Foundation Trust in 2018. It involved matching senior white leaders (as mentees) with mentors from black and minority ethnic (BME) staff. The primary goal was to enable the senior leaders to delve into their mentees' approaches regarding equality, diversity, and inclusion. The aim of the study was to gain insight into the attitudes, behaviours and practices in relation to equality, diversity and inclusion of the mentee (senior white male director) over a span of months of RM.

Main Findings	The paper noted several positive practices in the mentees' various levels of operation, which were classified as organisational, symbolic, individual, and departmental. At an individual level, this paper explored participants' attitudes towards and behaviour with black minority ethnic (BME) staff; at the departmental level, it included the departmental culture and practice and at the organisational level, the mentee supported the black and minority ethnic awards and nominations. At a symbolic level, there were pictures on the department wall of black and minority ethnic staff winning awards.
Title of the paper along with the authors and year of publication	Leh AS (2005) Lessons learned from service learning and reverse mentoring in faculty development: A case study in technology training. Journal of technology and teacher education, 13(1): pp.25-41.
Nature of the study and number of participants (n)	Empirical qualitative study carried out by informal interviews and surveys at the end of every workshop titled 'Preparing Tomorrow's Teacher to Use Technology (PT3) program'. There were 35 faculty members as participants.
Setting (Industry sectors)	College of Education (COE) State University
Data Collection Method	Interviews and observations
Purpose and aim of the study	To record the experiences of young mentors and professor mentees engaged in RM.
Main Findings	1. Professors produced technology projects by themselves with the help of their mentors. 2. At the end of the activities, students wrote a report describing their mentoring experiences. 3. Overall, the students were proud of mentoring their professors and it significantly increased their self-esteem. 4. Professors greatly appreciated the flexibility of the trainings and said that they learnt a lot from the trainings. However, the author of the study noted that some professors requested for a mentor but never worked with them.

	When the professors were asked as to why they didn't work then most of them replied that they liked the idea but never had the time to work with their mentors. 5. It took more time than anticipated for the students to build a working rapport with the professors and for the mentorship to flourish.
Title of the paper along with the authors and year of publication	Zauchner-Studnicka SA (2017). A model for reverse-mentoring in education. International Journal of Educational and Pedagogical Sciences, 11(3): 551-558.
Nature of the study and number of participants (n)	Based on empirical studies and theoretical approaches. There were no participants in this theoretical study.
Setting (Industry sectors)	Schools
Data Collection Method	NA
Purpose and aim of the study	This article aimed at the research and theory-based development of a reverse-mentoring model for education in schools.
Main Findings	1. Quality concerns for mentoring were discussed. 2. An effective mentoring program has to be designed for the specific context. For example- in the economy or industry, mentoring is often used for career development or for the heightening of job satisfaction, while in public institutions, mentoring is employed for knowledge transfer and in the medical sector, it is utilised to support the socialisation of young co-workers into the profession. 3. The matching of mentors and mentees is to be regarded as an essential quality issue. 4. Lack of training of the mentors is also considered a quality concern. 5. Deciding on the length and frequency of the RM programme is challenging.

	6. In organisations, it is challenging to fit mentoring programs into the organisational strategies and processes.
Title of the paper along with the authors and year of publication	Augustiniene A and Ciuciulkiene N (2013) Reverse mentoring as facilitating factor for the development of a beginning teacher's self-authorship process. Social Sciences, 81(3): 73-84. https://doi.org/10.5755/j01.ss.81.3.5791
Nature of the study and number of participants (n)	Analysis of scientific literature and content analysis of research participants' reflections. The sample consisted of 62 beginning teachers-mentees
Setting (Industry sectors)	School
Data Collection Method	All 62 mentees studying in the program were asked to write down their reflections on their pedagogical practice experience as a free text with special attention to answer the question 'What educational initiative of a mentee mostly affected mentor's professional development?'
Purpose and aim of the study	Identifying reverse mentoring aspects that moved the mentees towards the self-authorship process while becoming a professional.
Main Findings	1. Mentees in the reverse mentoring process learnt to challenge their own prejudice, became open in a real learning environment, established a dialogue with their mentor and became more independent in their pedagogical solutions. 2. Mentees mostly experienced that reverse mentoring impacts competencies such as 'Communication skills', 'IT literacy' and 'Self-evaluation skills'.
Title of the paper along with the authors and year of publication	Gündüz Ş and Akşit B (2018) Student-president reverse mentoring at universities: Maltepe University case. Yükseköğretim Dergisi, 8(3): 346-356. https://doi.org/10.2399/yod.18.019

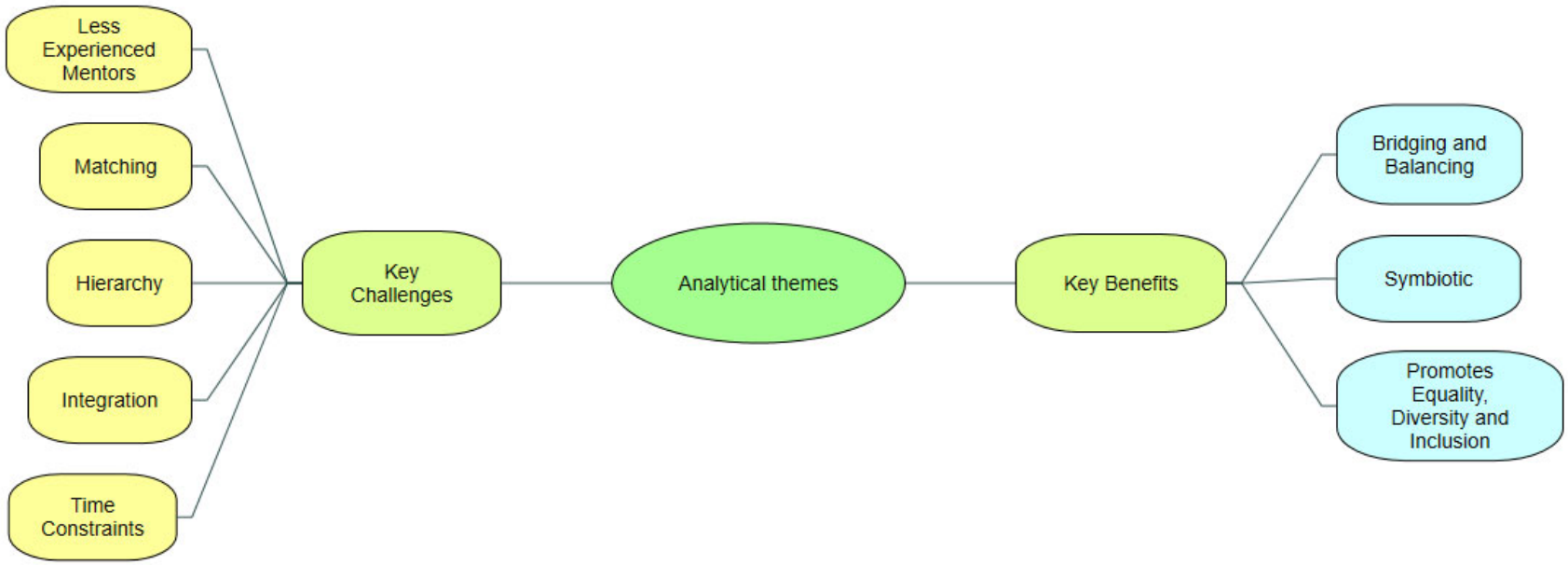
Nature of the study and number of participants (n)	Qualitative case study. The participants were five students (mentors) and the President (mentee) of Maltepe University.
Setting (Industry sectors)	Maltepe University in Turkey
Data Collection Method	Case study method with an in-depth interview technique was chosen due to the restricted number of mentors and mentees.
Purpose and aim of the study	Explore the experiences of the participants in Maltepe University, whose President initiated a reverse mentoring project at Maltepe University under the title 'Social Media Student Support Group (SMSSG)'.
Main Findings	1. The students aided the President and the University with basic social media applications. Barbour, Thomas, and Ritter (2006) in their research found that the universities were spending a great amount of money on technology but not on staff development to catch up with these technologies per se. Exposure to fast-changing technologies enables organisations to envision a new vision, like reverse mentoring. 2. The conceptualisation through the findings discovered the significance of a reverse mentoring system from which all higher education institutions can benefit. The findings of this case study revealed how reverse mentoring can clear up negative stereotyping in academia. 3. Both mentors and mentees found RM to be useful and provided their feedback on how RM can be made more effective.
Title of the paper along with the authors and year of publication	Frey TK (2021) Overcoming technological barriers to instruction: Situating Gen Z students as reverse mentors. Frontiers in Communication, 6: 6308.

Nature of the study and number of participants (n)	Theoretical with no participants
Setting (Industry sectors)	University settings
Data Collection Method	NA
Purpose and aim of the study	The essay presented an argument for using reverse mentoring to resolve technological problems in the academy.
Main Findings	1. Gen Z students were uniquely positioned to make the most of reverse mentoring programs. 2. Instructional communication was an essential framework for future reverse mentoring research.

Thematic Analysis

Thematic analysis as an approach was adopted to analyse each paper and to make themes from each paper (Braun and Clarke, 2006). An inductive approach was followed where each paper was read and re-read several times so as to generate meaningful codes and *posteriori* themes from it (Braun and Clarke, 2021). Six phases of reflexive thematic analysis and several rounds of coding (semantic, latent and inductive codes) in NVivo software enabled the researcher to form 2 major themes with 8 sub-themes. A thematic map in NVivo was formed, which enabled the researcher to explore the relationship between codes and various levels of themes (Kiger and Varpio, 2020; Nowell et al., 2017) (Figure 1).

Figure 1: Thematic Map



Based on the systematic literature review, two major themes emerged:

Theme 1: Key Benefits

Research suggests that RM has the capacity to narrow the gap between different employee generations. It is clearly stated in the extant literature base that RM "not only builds social capital within the workplace but also provides a two-way learning process; the mentor and mentee learn from each other" (Clarke et al., 2019: 694).

Some of the key benefits of RM are listed below as subthemes.

Sub-Theme 1: Bridging and Balancing

Reverse mentoring enabled the senior mentors to learn about technology from junior mentees (Frey, 2021; Murphy, 2012). For example, in the field of higher education, graduate students with digital literacy were paired with senior faculty members in the same department so that the senior faculty members could enhance their pedagogical skills from the guidance of their junior mentors (Alvarez et al., 2005).

Reverse mentoring can help in the structuring and balancing of the workforce. These days, organisations are grappling with retaining the millennials, mostly identified as job hoppers (Nolan, 2015). The challenge of retaining millennials who have superior technological skills is further aggravated by the exodus of the baby boomers, who retire at the rate of 10,000 employees per day (Gündüz and Akşit, 2018; United States Census Bureau, 2015). This presents a unique double-barrelled challenge for organisations to retain organisational knowledge as the brain drain is bidirectional. To address this quintessential challenge, many scholars have proffered inter-generational learning (Chaudhuri and Ghosh, 2012) as an option to retain the millennials and to engage the boomers. RM thus can help organisations to update the baby boomers with the latest techniques and technologies so as to mitigate the impact of churning (Augustiniene and Ciuciulkiene, 2013; Gündüz and Akşit, 2018).

Sub-Theme 2: Promoting Equality, Diversity and Inclusion

The attainment gap in higher education outcomes between under-represented ethnic minority groups and the white student body is a problem at a variety of institutions around the UK and Europe, requiring immediate and sustained interventions and actions (Chaudhuri et al., 2022). Some universities have opted for reciprocal mentoring programmes, where senior leaders in the organisation are paired with Black, Asian and Minority Ethnic (BAME) students (Peterson and Ramsay, 2021). In universities, the mentees are the faculty members, and the mentors are students and employees from different countries, each bringing a unique perspective with regard to religion, sexuality, race and ability. Therefore, RM can help to build a more inclusive and diverse organisation. In their research, Clare Peterson and Daniel Ramsay reached the conclusion that the practice of reciprocal mentoring at the University of Gloucestershire demonstrates the effectiveness of involving senior leaders and students from ethnic minority backgrounds. This approach was beneficial for the institution and proved to be personally enriching for the participants (Peterson and Ramsay, 2021).

Sub-theme 3: Symbiotic

Both mentor and mentee take advantage of the reverse mentoring relation (Augustiniene and Ciuciulkiene, 2013). The idea of reverse mentoring presents an inventive approach to promoting learning for all parties involved (Gündüz and Akşit, 2018). Additionally, it holds significant promise in enhancing intergenerational connections by fostering comprehension and mutual respect (Zauchner-studnicka, 2017). For example, in a university setting, the experienced professors/staff can get an insight into the dreams and aspirations as well as the fears of their young student mentors. At the same time, experienced professors/staff stand to gain from obtaining up-to-date knowledge of IT (Information Technology), making them more efficient in their day-to-day activities. This may, in turn, enhance their job satisfaction (Zauchner-studnicka, 2017).

Theme 2: Key Challenges

The mentor, who is younger or less experienced in the relationship, might grapple with issues of confidence and limited experience (Clarke et al., 2019; Gadomska-Lila, 2020). Moreover, the conventional power dynamics might be intensified by the overlapping responsibilities between the mentor and mentee roles within a reverse mentoring relationship (Murphy, 2012). The key challenges arise primarily because RM is very different from traditional mentoring. Some of the key challenges to reverse mentoring are listed below as subthemes-

Sub-theme 1: Less experienced mentors

The mentor may lack prior experience in the role of mentor, limiting his or her ability to fulfil this role adequately (Frey, 2021). Alvarez et al. (2005) found that hierarchical structures and lack of experience of mentors can act as inhibitors to the practice of RM. To overcome this potential limitation, reverse mentoring relationships must be characterised by mutuality, reciprocity and mutual respect.

Sub-theme 2: Matching

Roles that overlap can cause the traditional mentor-mentee exchange to have less distinct boundaries and the pairing of mentors and mentees should be considered a significant aspect of quality management (Clarke et al., 2019). The matching strategy needs to be considered carefully (Frey, 2021), and there is a dearth of literature in this area (Clarke et al., 2019). According to Schmid and Haasen (2011), it is essential to clearly define the mentoring aims and to recruit the target group.

Sub-theme 3: Hierarchy

In a study conducted by Alvarez et al. in 2005, it was discovered that barriers could arise between graduate students and faculty members who uphold a hierarchical structure. This could result in feelings of discomfort, hindering the ability to perform needs assessments and effectively exchange skills. Because the mentee is higher up in the hierarchy, some mentors might feel the pressure. For example, in a study by Leh (2005), it was found that when many professor mentees did not attend the RM, it worried some student mentors. Certain organisations opt to conduct their reverse mentoring initiatives in a neutral environment outside the confines of the office premises and this choice is influenced by the desire to prevent the reinforcement of hierarchical structures and power disparities that may have existed between senior mentees and junior mentors (Alvarez et al., 2005; Chaudhuri et al., 2022; Leh, 2005).

Sub-theme 4: Integration

Incorporating the program into the organisational process is essential and the RM program should be promoted within the organisation (Morris, 2017; Peterson and Ramsay, 2021). However,

integrating reverse mentoring into the overall organisational strategy poses challenges, particularly in determining the appropriate frequency, duration, and method for the reverse mentoring process (Zauchner-studnicka, 2017).

Sub-theme 5: Time Constraints

Peterson and Ramsay (2021) in their study observed that while numerous professors collaborating with mentors lauded the personalised training, a portion of these professors either requested a mentor but did not engage with them or interacted with their mentors merely on a sporadic basis. When asked why the service was not fully utilised, one mentee professor said, “The only area I would change on the reverse mentoring programme is getting more time with the mentors, to be more deeply embedded in what I do” (Raza and Onyesoh, 2020: 96).

The development of the mentorship dynamic took longer than a single quarter (or semester) to fully blossom (Leh, 2005). According to researcher Starcevich, the crucial aspects of a mentoring relationship are careful planning and effective management. He emphasised that dedicating a significant amount of time is a key component for the success of any mentoring relationship (Eller et al., 2014).

Discussion

The majority of the studies analysed in the review indicated that the primary focus of research on reverse mentoring was centred around transferring knowledge and bridging the technological gap among different age groups (Alvarez et al., 2005; Chaudhuri et al., 2022). Several observed results of reverse mentoring include the development of leaders and leadership competencies, enhanced learning and performance, elevated employee engagement, betterment of workplace culture, and the cultivation of team development (Murphy, 2012; Clarke et al., 2019; Morris, 2017). The sharing of ideas contributed to the cultivation of cross-generational leadership skills (Powell, 2013). The analysis clearly indicated the benefits and challenges experienced by both mentors and mentees, and these will be further discussed in the subsequent paragraphs by taking in the viewpoints of both mentors as well as mentees.

For mentors, the primary benefit of participating in a reverse mentoring relationship was their own leadership development and the chance to collaborate closely with a seasoned colleague, which enabled the acquisition of the skills essential for becoming an effective mentor (Raza and Onyesoh, 2020; Lee et al., 2006). By means of interactions, young mentors acquired organisational insights, including a deeper understanding of the leadership structure and the skills to effectively navigate and accomplish tasks within the organisation (Alvarez et al., 2005). Moreover, mentors also grasped diverse work values and approaches (Clarke et al., 2019; Frey, 2021). For less experienced mentors, the opportunity to engage in a relationship that is more partnership than apprenticeship facilitated open communication (Gündüz and Akşit, 2018). Exchange of ideas contributed to a mentors' feeling of empowerment and RM might expand mentors' intraorganisational network, thus increasing their social capital in the organisation (Augustiniene and Ciuciulkiene, 2013).

By engaging in reverse mentoring, mentors could enhance their personal learning by developing better interpersonal skills like self-disclosure, active listening, empathy and feedback (Lankau and Scandura, 2002). Some graduate students benefit from the relationship or network built with a faculty member in the RM project. For instance, in a reverse mentoring study conducted by researcher Leh in 2005, it was observed that a student mentor secured a full-time role at a different school. Moreover, three student mentors transitioned into positions as adjunct faculty members at universities. Over five student mentors were also extended invitations by faculty members and schools to deliver technology training, for which they received compensation for their services (Leh, 2005).

The seasoned mentee in a reverse mentoring partnership stands to reap advantages, primarily through exposure to the most up-to-date content or technical skills (Raza and Onyesoh, 2020). Furthermore, they can elevate their current leadership skills and experience a renewed sense of enthusiasm (Augustiniene and Ciuciulkiene, 2013). An experienced mentee can expect to derive concrete advantages from a fruitful reverse mentorship. These advantages encompass enhanced research output and the infusion of fresh concepts into the mentees' research work (Gündüz and Akşit, 2018). Additionally, mentees might attain insights into other domains that could pique the interest of their youthful student mentor (Clarke et al., 2019). Equipped with cutting-edge knowledge in innovation, reverse mentors could assume a more engaged role in idea development (Augustiniene and Ciuciulkiene, 2013). Consequently, this dynamic has the potential to foster a

collaborative and highly productive mentoring relationship within the realm of education and research (Clarke et al., 2019).

Contributions and Scope of Future Studies

This literature review draws attention towards the role reserve mentoring can play in higher education. Reverse Mentoring in higher education is an innovative approach to academic and professional development that offers staff a direct line to the students' voices. Reverse mentoring provides an opportunity for the students to share their knowledge of learning at the university with teaching faculty and staff. They present to academics the broad range of computer and mobile apps as well as the websites that they use to obtain knowledge and create learning. The approach is gaining increasing popularity and possesses the capacity to aid educators in comprehending the student perspective, thereby promoting the values of equality, diversity and inclusion throughout universities. This has the potential to contribute towards creating a more creative and fair university environment that benefits everyone. A well-designed reverse mentoring programme holds a range of benefits for the university staff and faculty. In addition to functioning as a platform for knowledge exchange, displaying students' accomplishments and exhibiting skills, reverse mentoring is also being harnessed to address concerns related to diversity and inclusion. This is achieved by fostering enhanced communication and engagement between different generations. Its application involves generating heightened awareness regarding individuals of colour and initiating dialogues pertaining to racial inequality (Peterson and Ramsay, 2021).

An avenue for future research could involve comprehending the diverse organisational culture elements that might exert influence on the adoption of reverse mentoring models. Fostering a positive work culture is crucial for embracing the reverse mentoring model effectively. Subsequent studies might delve into the effects of reverse mentoring on the well-being and job satisfaction of employees as well as students, investigating how mentorship relationships could enhance the overall work environment. Cross-cultural studies and in-depth case studies to observe how reverse mentoring is implemented might be helpful in improving our understanding of reverse mentoring practice. Future studies could be based on the training of the mentors, as well as the exchange of experiences and networking and how that mitigates lack of experience and might enhance the efficiency of mentoring programs. Lastly, performing comparative analyses across distinct sectors, such as private universities versus public universities, could shed light on which sector is deriving the most significant advantages from reverse mentoring initiatives.

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