SUPERVISORY AND DIGITAL LITERACY PRACTICES IN POSTGRADUATE SUPERVISION: A CASE STUDY

Sarjit Kaur[1], Gurnam Kaur Sidhu[2], Lee Lai Fong[2] and Leele Suzana Jamian[2]
[1]*English Language Studies Section, School of Humanities, Universiti Sains Malaysia, Malaysia*
[2]*Faculty of Education, Universiti Teknologi MARA, Selangor, Malaysia*

ABSTRACT

The twin forces of globalisation and internationalisation witnessed the global democratisation of higher education leading to the mushrooming of institutions of higher learning alongside with the rapid increase in student enrolments at all levels including postgraduate study. Despite the rapid developments in higher education, postgraduate study has been plagued with high attrition and low completion rates. Consequently, there is a need to look into delivery systems to ensure postgraduate supervisors use effective delivery systems in providing quality supervision. This paper investigated the supervisory and digital literacy practices among 40 supervisors in two public universities in Malaysia in the following four aspects: ethics, personal commitment, climate and use of digital tools. This mixed methods study collected data using questionnaires and semi-structured interviews. The findings revealed that the supervisors provided academic support, created a positive climate and guided their students about ethics in research to a great extent. The findings also revealed that supervisors should equip themselves with a diversity of supervisory practices, including making use of digital tools in managing their supervision practices more effectively. While a majority of the supervisors made use of digital tools in their supervision process, the interview sessions with six supervisors revealed that some of them reported being reluctant to make use of digital tools to check their students' draft chapters. These findings have implications for the need of quality delivery systems especially institutional and academic support for postgraduate study.

KEYWORDS

Postgraduate supervision, digital literacy practices, supervisory practices, digital tools, academic support

1. INTRODUCTION

In the 21st century, global experts acknowledge the rapid economic growth and development as well as impressive achievements made by higher education institutions in Asia. The cultural, educational and demographic depth of Asian civilisations is immense (Marginson, Kaur & Sawir, 2011). In line with such developments, empowering human capital through high levels of education is increasingly seen as being vital towards achieving better economic growth through the impact of research in driving innovation and competitiveness for any country in today's competitive world, including Malaysia. Realizing the need of knowledge and innovation of becoming a developed country with higher income, the Malaysian government through the Ministry of Higher Education (MOE) launched the National Higher Education Strategic Plan (NHESP) 2007-2020 on 27 August 2007. Under this plan, a special emphasis has been placed on providing better access to higher education, particularly in postgraduate programmes in the plan's Phase 2: Strengthening and Enhancing (2011-2015) pillar. In this phase, a programme for financing postgraduate studies labelled 'MyBrain15' has been included by the MOE and it aims to produce more doctoral graduates (PhD). MyBrain15 was specifically established to develop a talent pool of high-level intellectuals to spur the growth of research and innovation in the country. Through MyBrain15, the Malaysian government aims to produce a total of 60,000 Malaysian PhD holders by 2023. Up to June 2009, a total of 10,248 doctoral graduates have graduated from public universities, followed by 2116 graduates from private universities (Ministry of Higher Education Malaysia, 2011).

Nevertheless, Sidhu (2010) stated that the number of doctoral graduates produced by each institution has been substantially low because close to 60% of them drop out at a global level. Various researches cited that one of the main reasons that contribute to the attrition rate is postgraduate supervision (e.g. Moses, 1994; Wright and Lodwick, 1989). It takes an average 6-8 years to complete a PhD in most universities as a result

of inadequate facilities and resources as well as inadequate guidance from supervisors (Manyika & Szanton 2001). For this reason, best supervisory practices were found to have a great impact on students' success in completing their study and the supervisor became an important mechanism that ensures the students make good progress towards completion (Melissa Ng Abdullah & Evans, 2012). This calls for a need to re-examine the quality of postgraduate supervision in Malaysia. Though there are numerous studies that have looked into postgraduate supervision in the West there is little or scant empirical research on postgraduate supervision in Malaysia. Among the researchers that have explored this issue in Malaysia include Sidhu (2010) who conducted a comparative study that explored the perspectives of Malaysian and the UK supervisees on postgraduate supervision. Another study on postgraduate supervision was conducted by Norhasni Zainal Abidin (2006). However, there is limited research that has explored this issue from the perspectives of supervisors in Malaysia. Therefore, this study aimed to investigate supervisors' perspectives of postgraduate supervision. To be specific, it aimed to look into the supervisors' perspectives on the supervisory and digital literacy practices in postgraduate supervision.

2. LITERATURE REVIEW

In today's interconnected world, other than academic issues postgraduate supervisors are confronted with pertinent issues such as the criteria involved in being considered 'literate' in today's digital age and the requirements involved in cultivating digital literacy for themselves as well as their supervisees. To a great extent, educators need to be aware that the use of digital literacies involves the shift from traditional print-based media to the current information and communication technologies that can be used in learning and teaching contexts (Lankshear & Knobel, 2008). In promoting learner-centred education, supervisors around the globe acknowledge that the focus of instruction has shifted to the learner and they need to make their learners cultivate cognitive and critical thinking abilities as well as research skills in their search for information and play more active and participatory roles in their postgraduate journey. There is a vast array of digital resources integrated as part of our social and work related practices that can cause inability of managing the choice of materials. Digital literacy involves the technical skills which will enable the effective usage of digital gadgets and it comprises executing tasks in digital environments such as constructing knowledge during surfing the web, deciphering user interfaces, searching in databases, creating and sharing content on the web, chatting in chat rooms and communicating in social networks. Kress (2010) demonstrated how even the traditional textbook has undergone significant changes in both appearance and content, becoming increasingly image-centred and moving away from the linear toward a more modular design framework. Similarly, Lotherington and Jenson (2011) advocate the use of digitally mediated communication in today's postmodern world and call upon educators to put in place appropriate assessment practices that respect the varying academic competencies of all members of a learning context. For postgraduate students, living a literate life increasing means they have to learn how to navigate these spaces while managing one's identify and online data and considering complex issues of privacy and representation (Buck, 2012).

High quality supervision has been proven as an important element that facilitates students in fulfilling their academic potential (Cryer, 2000; Li & Seale, 2007). In view of that, Norhasni Zainal Abidin (2006) emphasized that best practices in supervision is a combination of factors which include the following: (1) the skill and commitment of supervisors (2) the ability and commitment of the students and (3) the existence of a policy or clear guidelines from institution. Thus, supervisors need to be clear about their roles and responsibilities in order to provide themselves with the necessary requirements and perform at their best during their supervision process. Since the quality of supervisory practices has a significant effect on postgraduate outcomes (Delany, 2009), it has become the interest of universities as well as governments to reliably improve the efficacy of postgraduate supervision. Van de Noort (2010) highlighted that supervisors should give guidance in terms of the planning of the research framework, helping to select relevant literature review and sources, conceptualizing research design and research methods as well as instrumental techniques, research data management and others. For example, some advice which should be given to students includes asking them to read books and journal articles, either in print or online form, that are related to the area of their investigation (Holdway et al., 1995). Additionally, during the period of writing-up of the thesis, supervisors are expected to keep in contact with students and respond to reasonable requests for

assistance (Abdulfattah Yaghi, 2006) and at the same time provide guidance on the writing and preparation of the thesis. This also includes commenting on at least one draft of the student's thesis. Besides that, supervisors also need to respond through the drafts of students writing by giving constructive criticism of the draft chapter by chapter until the completion of the study.

In addition, an effective supervisor must be competent, possess a solid research background and must be able to lead their students. Zhao (2003) highlighted that the main criteria in effective supervision is supervisory competence and emphasized that supervisors must be experts and be familiar with the students' area of investigation. Spear (2000) claimed that postgraduate students should be able to be responsible for their studies as taking responsibility helps students to take charge of their postgraduate study. Hence, supervisors should treat the students as independent researchers who take initiative in proposing and executing research. McQueeney (1996) asserts that supervisors do not need to exercise too much control on their students' progress as this can threaten the originality of the PhD and the autonomy of the novice researcher while too little control can delay and even lead to total failure. Thus, most of these researchers advocate the view that supervisors need to change their supervisory practices appropriately every time students move to another stage of academic writing.

3. METHOD

This study employed a descriptive research design with a mixed methods approach which involved both quantitative and qualitative data collection. The quantitative data were gathered from questionnaires while the qualitative data were obtained from interviews with the supervisors. A total of 40 postgraduate supervisors from two public universities in Malaysia (from three selected faculties comprising Education, Social Sciences and Science) responded to the questionnaires. These supervisors are referred to as Sample group A of the population. To maintain the respondents' confidentiality, these respondents were coded as R1 to R40. Sample group B of the study comprised six respondents (three from each university) who volunteered to take part in the interview sessions. Convenient sampling was used for the interview sessions. The supervisors were encouraged to give their honest views, opinions, comments, suggestions and recommendations on postgraduate supervision based on their experience as postgraduate supervisors. Keeping in line with research ethics, these supervisors were given pseudonyms such as S1-S6.The questionnaire used in this study was adapted from a study conducted by Sidhu, Chan and Farhana Wan Yunus (2012). Apart from that, the researchers also adapted some items from the questionnaire developed by the AKEPT Centre for Teaching and Learning in Selangor, Malaysia. The questionnaire developed in this study was referred to as the Postgraduate Supervision Questionnaire (PGSQ hereafter). The PGSQ was divided into two sections. Part A examined the demographic profile of the respondents while Part B comprised 19 items regarding the supervisory and digital literacy practices of the supervisors. The ratings that were used ranged from 1 to 5 on a Likert scale (with the starting point of "1- To a very little extent" and the end point of "5- To a very great extent"). Table 1 below shows the four aspects in supervisory practices that were explored in this study. The reliability of respondents' responses to the questionnaire was tested using the Cronbach's coefficient alpha which was .895 (α=.895) indicating it was reliable (Cohen, Manion & Morrison, 2011).

Table 1. Distribution of survey items in Part B

Aspects	Number of Items
Ethics	5
Personal commitments	6
Positive climate	2
Use of digital tools	6
Total	19

4. RESULTS

A total of 40 supervisors responded to the questionnaire in this study. Most of the respondents were female supervisors (62.5%) and the remaining were males (37.5%). In terms of their academic qualifications, a majority of them were PhD holders (67.5%) while the others possessed a Master Degree (32.5%).

4.1 Supervisory and Digital Literacy Practices

This study investigated supervisors' perceptions of their supervisory and digital literacy practices in postgraduate supervision. The scope of practices encompassed the following four aspects: (1) ethics, (2) personal commitments, (3) climate and (4) use of digital tools.

4.1.1 Supervisory Practices Based on Ethics

Table 2 shows the findings of supervisors' perceptions of their supervisory practices with regards to ethics. In general, it can be deduced that a majority of the supervisors demonstrated 'to a great extent' their supervisory practices during the supervision process (M=4.18, SD=.594).

Table 2. Supervisors' Perceptions with regards to Ethics (n=40)

Ethics	Mean	SD
Make students aware of issues in plagiarism	4.30	.687
Ensure students adhere to ethical data collection and data analysis procedures	4.30	.608
Clear about your roles and responsibilities as a supervisor in supervision	4.25	.670
Ensure students are aware of the ethical codes for postgraduate study	3.92	.764
Read the institution's Supervisory Guidelines /Code of Practices for Supervision	3.70	.823
Overall	4.18	.594

Scale: 1= To a very little extent, 2= To a little extent, 3= To some extent, 4= To a great extent,
    5= To a very great extent
SD   : Standard Deviation

From the results shown in Table 2, it was found that a majority of the supervisors demonstrated that they went to a great length to make their students aware of issues in plagiarism (M=4.30, SD = .687). Besides that, they also demonstrated (to a great extent) that they made sure their students adhered to ethical data collection and data analysis procedures (M=4.30, SD = .608) and it can be deduced that they were clear about their roles and responsibilities as a supervisor during the supervision process (M=4.25, SD=.670). On the other hand, supervisors 'almost agree' that they ensure their students are made aware of the ethical codes for postgraduate study (M=3.92, SD=.823) and assist their students to read the institution's Supervisory Guidelines /Code of Practices for supervision (M=3.70, SD =.823).

Based on the interview findings, all six supervisors claimed that they demonstrated 'to a great extent' that they made sure their students adhered to research ethics. Female supervisor S2 pointed out that she warned her students from the first meetings with regards to the issue of ethics in research:

> "During my first meeting with my students I will make sure that he or she reads the institution's Supervisory Guidelines /Code of Practices for Supervision"
> Likewise, male supervisor S1 also further stated that
> "I always ask for their soft copy to be checked for originality before checking students work further; in this way, I feel that my students will follow ethical procedures when doing their study"

4.1.2 Supervisory Practices Based on Personal Commitments

Table 3 presents the findings of supervisors' perceptions of their supervisory practices with regards to personal commitments. The results show that a majority of the supervisors demonstrated 'to a great extent' that their supervisory practices greatly assisted their students during the supervision process (M=4.30, SD=.648).

Table 3. Supervisors' Perceptions with regards to Personal Commitments (n= 40)

Personal Commitments	Mean	SD
Ensure students produce high quality work	4.50	.555
Read and edit given drafts before consultations	4.35	.770
Ensure students possess adequate research skills	4.35	.622
Ensure students' plans are divided into clear steps which lead towards completion	4.27	.716
Provide prompt high quality constructive feedback	4.13	.723
Ensure students know how to publish and where to publish	3.80	1.067
Overall	4.30	.648

Scale: 1= To a very little extent, 2= To a little extent, 3= To some extent, 4= To a great extent,
     5= To a very great extent
SD   : Standard Deviation

As seen from Table 3, a majority of the supervisors demonstrated 'to a very great extent' the need to ensure that their students produce high quality of work (M=4.50, SD=.555). Besides that, they also demonstrated 'to a great extent' the need to read and edit students' drafts before consultations (M=4.35, SD=.770) as well as ensure their students possess adequate research skills (M=4.35, SD=.622). Furthermore, the supervisors also agreed that they have to ensure their students' plans are divided into clear steps which lead towards completion of their study (M=4.27, SD=.716) and they also provided prompt high quality constructive feedback during the supervision process (M=4.25, SD=.670). On the other hand, the supervisors chose the option 'to some extent' in relation to the need to make sure their students know how to publish and where to publish (M=3.80, SD =1.067).

From the quantitative data, it can be deduced that 90% of the supervisors highlighted the importance of providing constructive feedback (both verbal and written feedback and on-the-spot feedback) in order to enhance the quality of their supervision. These findings were collaborated with data from the interview sessions in which the female supervisor S3 stressed,

> "*In order to make sure my students produce a good study I usually help them select what kind of journal they need to find or help them in googling the article. I read the same article too so that I can help my students better. Then I will assist them pick up the main point and link the point with another relevant article. I will do it first and show it to my student so that they will have the right idea. Later, I will let them do the critical reading and try to connect the contents of several articles. I also give them feedback and tell them what they need to improve.*"

4.1.3 Supervisory Practices Based on Positive Climate

With regards to positive climate, Table 4 displays the findings of supervisors' perceptions of their supervisory practices. In general, most of the supervisors demonstrated 'to some extent' that their supervisory practices helped to create positive climate (M=3.85, SD=.700).

Table 4. Supervisors' Perceptions with regards to Positive Climate (n= 40)

Positive Climate	Mean	SD
Possess good communication skills	4.12	.791
Ensure students engage with academic research communities	3.38	.979
Overall:	3.85	.700

Scale: 1= To a very little extent, 2= To a little extent, 3= To some extent, 4= To a great extent,
     5= To a very great extent
SD   : Standard Deviation

The findings indicate that a majority of the supervisors possessed good communication skills (M=4.12, SD=.791) in creating a positive climate with their students. On the other hand, the supervisors demonstrated 'to some extent' the need to ensure that their students engage with academic research communities (M=3.38, SD=.979).

4.1.4 Supervisory Practices Based on the Use of Digital Tools

The following section presents the supervisors' perceptions of their supervisory practices based on the use of digital tools. The level of the supervisors' perceptions of their use of digital tools looked into aspects such as their access to digital tools, use of search engines and use of data analysis tools. The study also explored supervisors' use of digital tools to communicate with students with regards to checking and providing feedback to student drafts online and engaging with students for online discussions/supervision. From the quantitative findings presented in Table 5 below, it can be seen that supervisors reported that they had good access to online services (M=4.28, SD=.887) and frequently used emails (M=4.45, SD=.632) to communicate with their supervisees. The findings show that many supervisors also frequently make use of search engines (M=4.26, SD=.808) to look for information related to their students' research areas. However, the use of data analysis tools in the supervisory process is a less common practice among supervisors (M=3.97, SD=.067). In addition, the supervisors engaged less frequently in checking and providing feedback to student drafts online (M=3.23, SD=.597) and engaged to a lesser extent with their supervisees for online discussions (M=2.98, SD=.876).

Table 5. Supervisors' Perceptions Based on the Use of Digital Tools (n=40)

Ethics	Mean	SD
Access to online services	4.28	.887
Use of search engines	4.26	.808
Use of data analysis tools	3.97	.067
Email communication with students	4.45	.632
Checking & providing feedback to student drafts online	3.23	.597
Engaging with students for online discussions / supervision	2.98	.876
Overall	4.18	.594

Scale: 1= To a very little extent, 2= To a little extent, 3= To some extent, 4= To a great extent,
5= To a very great extent
SD : Standard Deviation

The extent of the use of digital tools in supervising postgraduate students was further investigated in the interviews with the six postgraduate supervisors. The supervisors stated that they used their institution's available online reporting system to record and track their supervisees' performance each semester. Only two of the supervisors expressed the view that they made use of digital tools to provide feedback to their supervisees on a regular basis. According to male supervisor S1,

> "I use technology for functional purposes, that is to access networked sources, media and digital gadgets for my own purposes and I encourage my supervisees to do the same. Similarly I ensure that my students are at ease with using a range of search engines, online services and data analysis tools as well as powerpoint and other types of digital tools. This is important for all of us in the academic community. I admit I don't engage much in online forum discussions with my supervisees, mainly due to time constraints"

One female supervisor (S5) had this to say,

> "I acknowledge that using technology can help me supervise better. But I feel more at ease with working on hard copies of my students' draft chapters instead of working on their softcopy version. I can proofread and correct their work faster in print form. Generally, I don't make use of digital tools in my supervision process; I email my students mainly for setting appointments but prefer to provide feedback orally or on their hardcopies"

Female supervisor S2 expressed the following view:

> "As a supervisor, I believe I possess functional knowledge of digital tools. To be honest, I'm still learning how to use the 'Review' tool in Microsoft Word….because I'm over 50, it's taking me longer to get used to editing students' work digitally. But I am familiar with using search engines to look for new information and I read a lot of articles online and I encourage my supervisees to do that as well…also to locate Phd theses index etc."

5. DISCUSSION AND CONCLUSION

The findings of this study indicate clearly that supervisors should equip themselves with a diversity of supervisory practices, including making use of digital tools in managing their supervision practices. The results of the study indicate that some supervisors are reluctant to make use of digital tools to check their students' draft chapters. The supervisors demonstrated their supervisory and digital literacy practices to a great extent and provided good support to their students. This implies that supervisors were clear about providing guidance to their students during the different stages of supervision. There were four aspects explored in supervisory practices namely ethics, personal commitment, positive climate and use of digital tools. In the aspect of ethics, supervisors reported that they tried to make their students aware about plagiarism and they took steps to ensure that their students adhered to ethical data collection and data analysis. Supervisors also took measures to ensure that their students are aware of relevant regulations and legal issues, not only limited to plagiarism but also in terms of copyright, data protection, health and safety and any other ethical issues that might arise in research. McQueeney (1996) supports the claim that supervisors also have to make sure that their students understand university policies in preparing academic project reports.

With regards to personal commitments, supervisors always ensure that their students produce high quality work by giving feedback and discussing plan of study with their students as well as giving academic advice during the supervision process. Supervisors also act as evaluators, monitors and gatekeepers (Holdaway et al., 1995). Supervisors have legal responsibility and ethics to monitor the quality of care that is being delivered to their students. In order to assure quality of care and enhance the professional functioning of the students, the supervisor constantly monitors and provides feedback regarding their students' performance (Spear, 2000). In addition, supervisors also reported that they maintained good communication skills with their students with regards to building a positive climate. Moses (1994) and Zhao (2003) emphasized that good supervisors necessarily led to trust and respect based on academic standards by possessing counseling skills. Based on gender, male and female supervisors have significant differences regarding their supervisory practices in the personal commitment aspect.

In terms of the supervisors' digital literacy practices, the quantitative findings indicated that there was no significant difference between male and female supervisors, indicating that the supervisors were comfortable in utilizing technology to enhance their supervisory practices. The interview data further indicated that male supervisors appear to encourage their supervisees to make use of a range of digital tools in searching for relevant information for their research topics in comparison to female supervisors. While there are hurdles in using digital tools in postgraduate supervision, the findings of the study indicate that supervisors do make use of such tools 'to a great extent' and acknowledge that institutional infrastructure can be further improved to support the use of such technologies on a wider scale.

REFERENCES

Abdulfattah Yaghi, 2006. *Training Transfer in Human Resources Management: A Field Study on Supervisors*. Department of Political Science, Mississippi State University.

Buck, A. 2012. Examining Digital Literacy Practices on Social Network Sites. *Research in the Teaching of English,* Vol 47, No. 1, pp 9-38.

Cohen, L., Manion, L. & Morrision, K. (2011). *Research Methods in Education*, 7th edition. Routledge, London.

Cryer, P. (2000). *The Research Student's Guide to Success*. Open University Press, Buckingham.

Delany, D. (2009). *A Review of the literature on effective PhD Supervision*. Center for Academic Practice and Student Learning, Trinity College.

Holdway, E. et al, 1995. Supervision of graduate students. *The Canadian Journal of Higher Education,* Vol XXV, No. 3, pp 1-29.

Kress, G. ,2010. *Multimodality: A Socio Semiotic Approach to Contemporary Communication*. Routledge, London.

Lankshear, C. & Knobel, M. (Eds.), 2008. *Digital Literacies: Concept, Policies and Practices.* Peter Lang, London.

Li, S. & Seale, C., 2007. Managing Criticism in Phd Supervision: A Qualitative Case Study. *Studies in Higher Education,* Vol 32, No. 4, pp 511-526.

Lotherington, H. & Jenson, J. ,2011. Teaching Multimodal and Digital Literacy in L2 Settings: New literacies, New Basics, New Pedagogies. *Annual Review of Applied Linguistics,* Vol 31, pp 226-246.

Manyika, S. & Szanton, D.L.,(2001. *PhD Programs in African Universities: Current Status and Future Prospects. A Report to the Rockeller Foundation.* University of California Berkley, USA.

Marginson, S., Kaur, S & Sawir, E., 2011. *Higher Education in the Asia-Pacific: Strategic Responses to Globalisation.* Springer, Netherlands.

McQueeney, E., 1996. The Nature of Effective Supervision. *A Journal for Further and Higher Education,* Vol 20, No. 1, pp 23-30.

Melissa Ng Lee Yen Abdullah & Evans, T., 2012. The Relationship Between Postgraduate Research Students' Psychological Attributes and their Supervisors' Supervision Training. *Procedia Social and Behavioural Sciences,* Vol 31, pp 788-793.

Ministry of Higher Education Malaysia., 2011. *Statistics.* Retrieved 5 June 2015 from www.jpt.moe.gov.my

National Higher Education Strategic Plan. 2014. Retrieved 15 August 2014 from http://www.theborneopost.com/2014/02/23/zaini-higher-education-strategic-plan-being-reviewed

Norhasni Zainal Abidin (2006). *Keberkesanan Hubungan Antara Pelajar dan Penyelia dalam Penyelidikan dan Penyediaan Projek Akademik.* Universiti Putra Malaysia Press, Serdang, Malaysia.

Sidhu, G.K.2010. *Supervisees' Perspectives and Expectations of Postgraduate Supervision in Malaysia.* Education faculty, Universiti Teknologi MARA, Shah Alam, Malaysia.

Sidhu, G.K et al, 2012. Postgraduate Supervision: Exploring Malaysian Students' Experiences. *Procedia – Social and Behavioural Sciences,* 90, 133-141.

Spear, R.H., 2000. *Supervision of Research Students: Responding to Student Expectations.* Australian National University, Canberra, Australia

Van de Noort, R., 2010. *Code of Good Practice: Supervision of Postgraduate Research Students.* Retrieved on 23 September 2014 from admin. exeter.uk/academics/tls/tqa/Part%207/7/Epgsuper.pdf

Wright, J. & Lodwick, R., 1989. The Process of the PhD: A Study of the First Year of Doctoral Study. *Research Papers in Education,* No. 4, pp 22 – 56.

Zhao, F., 2003. *Postgraduate Research Supervision: A Process of Knowledge Management.* Retrieved 20 August 2013 from http://ultiBASE/rmit.edu.au/Articles/may01/zhao1.htm