

# Technical Report

## for University of Michigan Master of Health Professions Education

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## **Executive Summary**

The students of SI501 were engaged by Master of Health Professions Education program to improve the information flow and content management. Program stakeholders have trouble finding the documents and information pertinent to their roles. Also, the program requires a platform to replace CTools, one of the most used content management platforms supporting MHPE. In this report we present our findings from contextual interviews with five stakeholders representing learners, program leadership, faculty, and administrative staff. Our key findings and recommendations are as follows: learners do not know where information about the program and administrative processes are stored; information does not consistently flow between committees and mentors; learners have inconsistent access to content experts and committees; learners rarely interact or share information between themselves; and a more comprehensive and organized content management system is needed for MHPE.

## Background Information

The Master of Health Professions Education (MHPE) housed in the Department of Learning Health Sciences at the University of Michigan Medical School trains clinicians in pedagogical positions to be educators of tomorrow's providers. Michigan's MHPE program primarily recruits clinicians who hold pedagogical positions. The program is designed to be very flexible. Rather than take courses, students undertake a series of independent studies to gain competency in prescribed areas. Students are also guaranteed access to content experts to help them with specific subjects. They are assigned a respective mentor with whom they work closely to develop and implement an individualized academic plan. Medical School faculty who hold leadership positions in the Medical School are selectively recruited to be mentors to ensure that students learn to be leaders as well as educators. Currently MHPE has 14 enrolled students. Seven are Michigan residents, seven live in different states. At the close of its second year no students have yet graduated.

MHPE is supported by two program managers and overseen by five committees which are:

- Admission: responsible for selecting prospective students to admit to the program;
- Curriculum: develops and amends the competency requirements;
- Assessment: responsible for evaluating student independent assignments and academic progress;
- Evaluation: responsible for assessing overall program success; and
- Steering: comprised of the chairs of all other committees, this committee sets the direction of the overall program.

The students of SI501 were engaged by the program to improve the information flow and content management. Program stakeholders appeared to have difficulty finding the documents and information pertinent to their roles. In addition, CTools, one of the most used content management platforms supporting MHPE, will no longer be provided at the end of the 2015 winter semester. A replacement will therefore be necessary.

## Methods

Program staff and the SI501 team held a kick-off meeting in early February to establish project goals. At this meeting MHPE staff and team members also worked collaboratively to identify individuals representative of the different program stakeholder roles. In the end, the team invited eight individuals via email to participate in the contextual interviews.

MHPE staff and team members also worked collaboratively to identify potential interview subjects. Six interviews were conducted in February and March of 2015. Participants represented the following program roles:

- Program administrators;
- Committee members;
- Mentors;
- Local learners; and
- Distance learners.

Two to three members of the team attended each interview. One individual served as the facilitator, the other(s) as note takers.

Interviewers used a contextual approach for the interviews. The term “contextual interview” derives from the idea that in order to understand human behavior, we must understand the context in which individuals operate including: social norms and pressures, physical constraints and technological constraints, and individual factors such as personality and personal preferences. Therefore, interviewers observed participants conducting normal or simulated work tasks whenever possible. In many cases this was not feasible because the interview could not take place at the participant’s main place of work.

Each interview was recorded after first getting consent from the participant. Within a week of conducting each interview, the entire SI501 team met to discuss findings. Team members coded interviews using post-it notes then physically grouped these post-its to visualize broader thematic content.

The SI501 team determined the scope of the recommendation space in collaboration with the program administrators. While the initial challenge statement had focused on the technology of information systems, administrators decided that solutions should also explore program policies.

## **Findings**

MHPE has rich human and information resources to guide learners and mentors in the form of content experts, targeted readings, and logistical documents such as the explanations of the EPAs. However, program administrators voiced an overarching concern that learners and mentors seem to have difficulty locating the materials and information pertinent to their roles therefore frequently query administrative staff. This pattern burdens the already busy administrators. Consistent with this observation, contextual interviews revealed that stakeholders do not always know where or with whom information resides. We drew a flow model which includes all user groups to identify problems above(See Appendix). We therefore identify actionable items aimed at improving awareness of information sources and document

organization. These items also encourage community building as a means of increasing the number of human resources a stakeholder can access at a given time. Where appropriate, actionable items are separated into short-term and long-term. We also identify program assets which we drew upon in developing the recommendations.

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## Program Assets

The MHPE program has several strong assets, foremost among which are its human resources. All of the program mentors hold leadership positions at the University of Michigan Medical School. They are therefore uniquely positioned to help learners build leadership skills as well as expertise in education. The mentors also highly value the program and their learners, as evidenced by their willingness to participate despite the demands on their time. MHPE also has content experts to help guide learners through their academic journey.

The program also benefits from the support of two highly capable program administrators, both of whom were highly praised by other stakeholders. The only cloud on the horizon is that one of the administrators will begin a doctoral program in the fall and will therefore have to limit his involvement with MHPE.

The structure of the program is also an important and valuable component. MHPE emphasizes flexibility. Unlike most master's programs, the University of Michigan MHPE program has no courses. Instead, learners work one-on-one with mentors to develop and complete independent activities. Learners informed us that this flexibility was a key reason they chose to come to Michigan.

Finally, the MHPE program managers recently transitioned the website from WordPress to Drupal. This was a timely switch considering that Drupal has robust content management functionality which may help ease some of the information management-related challenges facing program managers.

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## Finding 1: Learners do not know where information about the program and administrative processes are stored

The MHPE program currently use the public-facing website successfully to provide prospective learners with all the information they need to determine whether and how to apply to the program. Program stakeholders developed content to explain the main features, and the administrators recently added a Frequently Asked Question section based on the phone calls they received from prospective students. Since this addition, phone call volume has noticeably decreased.

Communicating with current learners has proven slightly more challenging. The EPA structure of the MHPE program provides learners with maximum flexibility. However, it also means that academic processes are slightly more complicated than in traditional course-based programs. For example, there is no single day on which learners take a test or submit a paper. Learners also felt that there was no identifiable repository for the administrative protocols associated with EPAs. They were equally confused about where to look for other administrative details. As a result, learners reported primarily contacting program administrators about these issues. While learners further reported that program administrators were always helpful and knowledgeable, this reliance can create additional work for administrators who must reply to each individual query.

Program managers primarily use email to disseminate administrative information to learners. While learners informed us that they save and refer back to these emails, email has a few drawbacks for communicating this type of information. In the first place, individual users control whether to save or delete messages—and accidentally deleting messages is an all too common occurrence. Secondly, inboxes have no built-in functionality to group messages by importance and type of content. Adept users can curate their email using folders or tagging, as some interview participants reported doing. However, curation can take considerable time if the inbox volume is high and may therefore not be feasible in light of mentor and learner schedules.

Program administrators have also used the CTools Announcement function but sporadically, and not recently; the last post date is August 20, 2014. Notably, none of the learners interviewed mentioned visiting this forum indicating that they are either unaware of its existence or have not found the contents helpful.

Subject	Saved By	Modified Date	For Be
<a href="#">Upcoming 2014 - 2015 MHPE Events &amp; Important Dates</a>	John Vasquez	Aug 20, 2014 12:49 pm	site
<a href="#">Speed Reading Class Follow-Up</a>	John Vasquez	Apr 23, 2014 2:09 pm	site
<a href="#">MHPE Calendar</a>	John Vasquez	Apr 17, 2014 1:38 pm	site
<a href="#">MHPE Process for Submitting EPA for Assessment</a>	John Vasquez	Apr 17, 2014 9:48 am	site
<a href="#">UM-MHPE Community Newsletter Issue #3- April 14, 2014</a>	John Vasquez	Apr 14, 2014 2:29 pm	site
<a href="#">Follow-Up to Community Conversation 3.26.14</a>	John Vasquez	Mar 28, 2014 10:07 am	site
<a href="#">Adobe Connect Instructions</a>	John Vasquez	Mar 26, 2014 9:46 am	site
<a href="#">MHPE Community Conversation Tomorrow, 3/26</a>	John Vasquez	Mar 26, 2014 9:30 am	site
<a href="#">Changing C-tools Notification Settings</a>	John Vasquez	Feb 6, 2014 9:43 am	site
<a href="#">2.4.14 Recording of MHPE Community Conversation Now Available</a>	John Vasquez	Feb 5, 2014 8:22 pm	site

Figure 1. Announcement section in UM MHPE CTools page

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## Recommendations

Open a stable channel for communicating administrative information: Short-term and Long-term.

Centralized, universally accessible forums can be powerful and efficient tools for communicating information to multiple people. They also allow different stakeholders to share their input via responses. However, this forum will have to be used widely and consistently to be useful. Administrators may consider doing any of the following:

- Establish an announcement forum on the platform which will replace CTools;
- Post all announcements that would typically be sent in a mass email to this forum;
- Announce the presence of this forum to mentors, learners, and other relevant stakeholders via initial email or on the MHPE website; and
- Direct learners and mentors to the forum when they ask questions which have already been answered. To ensure that learners and mentors also feel that their needs have been met, administrators may consider putting the most important summary in the body of a response email and directing the individual to the forum for the full discussion. Stakeholders may feel ignored if the response to their query only consists of an instruction to look at a different source.

This recommendation can be considered short-term because the actual forum can be developed quickly. However, it may considerably longer for stakeholders to remember to check and post to the forum regularly, depending on announcement frequency. Therefore, we have classified this recommendation as both long-term and short-term.

Display important information on the MHPE public-facing websites: Short-term

The benefits of a public website include:

- Current learners already check the website for pertinent information;
- Easy access;
- Content is organized by audience and/or topic; and
- Search functionality.

A key indicator that using the website in this way would be successful is that learners informed us that they have checked the website in the past when looking for administrative information, and that they were surprised when they were unable to find these details on the website. Capitalizing on this interest would therefore not require an extensive campaign to generate awareness or buy-in from learners. Also, leadership and administrators may want to avoid posting information in the form of links to external documents; the additional step of opening a document may reduce the number of people who choose to view the content.



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## Finding 2: Information does not consistently flow between committees and mentors

Instead of courses, MHPE curriculum is organized into Educational Professional Activities (EPA). Each EPA represents a cluster of competencies that learners are expected to master during the course of the program. Learners design and conduct these independent activities primarily under guidance of their mentor. The curriculum committee develops EPA requirements and documents for the different content areas, while the assessment committee judges learners' academic progress based on these requirements. It is therefore vital that information flows uninhibited from committee to mentors in order for these mentors to adequately support and guide their learners. The main ways mentors learn about committee-related information are as follows:

- Some mentors are members on the curriculum or assessment committees and therefore attend meetings and/or read the minutes from these meetings;
- The assessment committee invites the mentor of the learner whose EPA is under review to sit in on the review session;
- The assessment committee chair invites learners to discuss the results of the findings with him. Learners have the option of inviting their mentor to this discussion; and
- Administrators inform mentors of changes to the EPAs.

However, stakeholders in multiple positions expressed concern about whether mentors sufficiently understood the EPAs. Part of the difficulty may come from the fact that the curriculum committee recently revised the EPAs. One learner reported that their mentor would frequently express confusion over which EPA document was the newest version, and sometimes about the content itself. The mentor would then raise the matter with the program administrators, all of which delayed the learner's progress. Interestingly, none of the mentors reported any difficulty with the EPAs.

In fact, the EPAs covers broad and complicated subject matter and mentors, like every other professional, are bound to have questions from time to time. Interview participants reported that mentors often ask for assistance from the program administrators when they have questions. These conversations in turn add additional burden to the administrators.

Several factors impede the flow of information from these committees to mentors. First of all, committee members, including members who are also mentors, do not always attend all meetings. MHPE faculty and leadership are all very busy. As mentioned above, mentors hold leadership as well as pedagogical positions at the University of Michigan Medical School. However, committee members still miss out on potentially important developments when they do not attend meetings. Additionally, some committee members did not even know where minutes were stored let alone read them.

A second impediment is that, to date, neither distance learners nor their mentors have ever chosen to discuss the results of their assessments with the assessment committee chair. The implications for learners are discussed under finding 3.

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## Recommendation

Designate one member of the curriculum committee a mentor and student liaison:  
Short-term

Currently there is no specific point of contact on the curriculum committee for non-members. Designating a point of contact for mentors to ask questions would relieve some of the burden on administrators. Also, by helping mentors, this individual would also help learners derive more value from their activities, and potentially help them master the competencies more quickly. However, this point of contact would need to either attend all meetings or at the very least read the minutes from any meetings they had to miss.

Provide a comprehensive orientation to mentors: Short-term

Currently, program administrators are responsible for orienting mentors to the MHPE program. This currently consists of reviewing the mentor handbook for approximately an hour in order to accommodate both administrators' and mentors' busy schedules. However, stakeholders do not feel that this provides an adequate introduction to the program structure or the role of the mentor. A longer, more in-depth orientation would help familiarize mentors with the complex EPA content. When designing this orientation, program staff may want to consider:

- Creating simple summary sheets or presentations on major topics;
- Inviting all mentors to attend for a refresher; and
- Having Dr. Gruppen or other department and program leadership deliver a portion of the orientation. We understand that leadership have demanding schedules but his presence may improve buy-in for the event and the overall enterprise.

Develop short videos or other supplementary materials to introduce EPA content:  
Long-term

In addition to a one-time orientation, supplementary material available on any of the MHPE platforms would help both new mentors and mentors who need a refresher on any of the EPA content, as well as learners. The content experts retained by the MHPE program could each develop an introduction to their subject matter. This would have the added benefit of introducing the content matter experts to mentors and learners.

## Schedule fewer mentor meetings and require mentor attendance: Short-term

This recommendation does not officially involve the committees. However, many mentors also serve on committees. Mentor meetings are a perfect opportunity for these different stakeholders to exchange important information. Other recommended changes to mentor meetings are:

- Require that all mentors be present at mentor meetings; and
- Invite content experts and/or committee members to speak for 15-20 minutes on topics of interest;

Mandatory attendance is one way to improve the currently low attendance rates. Mentors may be apprehensive about this change considering they all have busy schedules. One way to address these concerns is to schedule fewer meetings, such as every three to four months. At the same time, the content experts and committee members would add value to the meetings which could potentially improve attendance and generally help mentors understand the program and content areas.

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## Finding 3: Learners have inconsistent access to content experts and committees

EPAs covers too many subjects for any one person to master, even for individuals as accomplished as the MHPE mentors. Therefore, MHPE maintains relationships with diverse content experts. One of the learners did in fact report that content experts had provided them with insights and materials that helped them successfully complete EPAs. In contrast, the other learner was unaware of existence of these individuals.

The interviews also revealed that the only committee with which learners have any significant contact is the assessment committee. Though communication with other members of the committee is not allowed, the committee chair invites learners to discuss the assessment results with him via the medium of their choice—in person, phone, skype, etc. Interview participants reported that several of the local students have taken advantage of this opportunity. To date, however, none of the distance students have done likewise. It is interesting to note that the learners who had these discussions all chose to have them in-person.

This separation of committees and learners is neither an intrinsically bad design nor uncommon; students rarely communicate with the leadership in higher education institutions. However, in the particular case of the MHPE program it might be a missed opportunity. In the first place, learners expressed confusion over the EPAs that members of the curriculum committee could help clarify. One of learners reported frequently feeling confused about EPA

objective. From learners' perspective, if committees state clearly about the requirement and goals, it would be much easier for them to do the report. Also, with variable access to content experts, the only consistent academic guide learners have is their mentor, who may not be able to guide them in all EPA areas. In fact, one of the learners expressed frustration because they did not feel their mentor was able to provide them with sufficient resources to help them with the EPAs. They also reported that when they went to their mentor because they were confused about an EPA they frequently found that their mentor was likewise unclear on the specifics of the EPA. The learner also said that they did not know where else to turn for help. Finally, relying on one person as the sole academic support puts learners at risk should any communication issues or conflicts arise between learners and mentors.

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## Recommendations

Prominently display and publicize a list of content experts explicitly inviting learners to connect with them: Short-term

The program maintains faculty lists in two places: CTools; and the public-facing website. However, neither lists their specific areas of expertise on the main page. Nor does either list explicitly invite learners to contact these individuals. In addition, any individuals who are not technically members of the MHPE faculty but have agreed to participate in the program as content matter experts should also be listed.

Post supplementary materials featuring or written by content matter experts and curriculum committee members for learners: Long-term

Learners expressed an interest in additional clarification around the EPAs as well as “coursera-like” content and structure. While full-blown courses would be neither feasible nor desirable, short videos and other supplementary materials such as were recommended under finding 2, would orient learners to EPA-relevant content matter and introduce content experts to learners, all without compromising the flexibility that is a cornerstone of the MHPE program. These materials could consist of short videos or a video series, podcasts, slide decks, or single page summaries. To conserve efforts, content experts could produce materials that meet both learner and mentor needs, as outlined in finding 2.

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#### Finding 4: Learners rarely interact or share information between themselves

Both learners interviewed informed team members that they had little to no contact with any of their fellow learners. The lack of classes means that learners have few opportunities to mingle with their peers. Additionally, exactly half of the learners do not live in Michigan. As mentioned above, the structure of the MHPE program is very attractive to the program's demographic; clinicians who also hold teaching positions. Both learners informed us that the high degree of flexibility was a key factor in their choosing the University of Michigan MHPE program. At the same time, learners expressed interest in getting to know their peers. One of the learners said simply that there are few mechanisms to help learners get to know one another. As a result, they felt awkward about contacting other learners, which led to their feeling very isolated. Learners reported that peer support would be particularly helpful when they needed to submit their EPA papers, in part for the emotional support they could provide and in part to learn from each other's experiences. This support is particularly helpful if any issues arise during the assessment process.

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#### Recommendations

##### Move the orientation retreat to the beginning of the fall semester: short-term

Learners reported that the retreat was an invaluable introduction to the MHPE program. One of the learners told us that they had not really understood the program until the retreat. The MHPE program should definitely continue to hold annual learner retreats. It is also one of the few opportunities for them to meet their peers. The retreat is usually held in October. While this is close to the beginning of the fall semester, learners still feel that they could have spent that month more productively had they already attended the retreat.

##### Make the orientation retreat in-person mandatory for first-year or all learners: short-term

The advantage of this recommendation is that it ensures learners' participation in orientation retreat. Since the retreat only happens once a year this requirement should not significantly inconvenience the learners. One possibility is to require all learners regardless of their cohort to attend the retreat. This would allow learners the most peer interaction and generally build a peer community. Another option would be to only require first-year learners to attend if program managers and leadership are concerned that learners will strongly dislike having to attend in subsequent years. One way to minimize any burden, particularly to distance learners, would be to survey learners on their availability well in advance of the retreat.

Provide learners with an online orientation retreat.

This recommendation is based on the consideration of the disadvantage of the recommendation 2, as an online orientation retreat would be more accessible to distant learners. However, an online orientation retreat may be less effective than in-person one because things may not go well because of technical problems including networking delay, loss of data and other unexpected situations.

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### Finding 5: A more comprehensive and organized content management system is needed for MHPE

Content management systems (CMS) are computer applications that allow users to upload, edit, modify, organize, delete and maintain content from a central interface.<sup>1</sup> Most content management systems also have functions including version control, indexing and searching to provide users a collaborative environment to manage workflow.

There are now two major content management systems, CTools and M+Box, used in the MHPE program. However, through our observations and interviews, we found that both of these systems are experiencing some troubles. Thus, a more integrated and organized content management system is needed for MHPE.

CTools is an advanced web-based course and collaboration environment. It is a set of tools designed to help instructors, researchers and students create course websites and project websites. CTools is the University of Michigan's implementation of the Sakai Collaboration and Learning Environment (CLE).

M+Box is a partnership between the University of Michigan and Box that offers an easy and safe way to store and share files and collaborate with others. It provides both Web and mobile interfaces that allow users for file uploading, downloading, commenting and editing. In MHPE, a lot of information, including working documents, are available on M+Box for mentors, committees and program managers.

During our interviews, we found that different stakeholders in MHPE use CTools and M+Box for different purposes and they also have their own preferences towards these systems. For example, one program manager told us “I use M+Box a lot more than CTools for program operations, access learner files, schedule committee meetings and budget”. On the other hand, a learner said, “I never used M+Box, but I have used CTools at least 20-25 times. CTools is a great tool for information and is easy to follow and navigate.”

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<sup>1</sup> Content Management System. (n.d.). In Wikipedia. Retrieved April 23, 2015, from [http://en.wikipedia.org/wiki/Content\\_management\\_system](http://en.wikipedia.org/wiki/Content_management_system)

Since much information and many documents are kept both on CTools and M+Box, program manager told us it is a bigger issue to make those files well-organized and keep all the files accessed by mentors and learners are up to date.

In addition to the version control issues, CTools is getting old; the long-term maintenance costs for applications, scalability, and reliability are huge factors. According to a December 2014 report by the Information and Technology Services (ITS) center at the University of Michigan<sup>2</sup>, Canvas, a learning management system proposed as the successor to CTools, shows promise as a replacement based on the feedback from faculty and students. Thus, if the University decides to replace CTools with Canvas, MHPE must migrate data from CTools to Canvas.

Based on the current situation, we think MHPE needs to find a more comprehensive content management system for relaying, storing and sharing information. After investigations into Canvas and several popular content management system, we proposed two recommendations for the new content management system.

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## Recommendations:

### Adopt Canvas as CTool's Replacement

Canvas is the most straightforward recommendation for the future. From ITS report, we found more than 200 instructors and 10,000 students at the university used Canvas during Fall 2014 and Winter 2015. According to their feedback, Canvas' layout is quite similar to that of CTools and is easy to become acclimated to. Compared with CTools, Canvas makes much more visible student accomplishments, assignments, and tasks to be completed. Although MHPE is not a course-based program, the well-organized structure and navigation will likely provide students and mentors in MHPE a comfortable, convenient and predictable environment. Another benefit is that ITS will provide comprehensive technical support for Canvas.

However, Canvas has some limitations. Since Canvas is focused on coursework and the MHPE program is not a course-based program, it may not be as convenient or efficient for the collaborative work between committees, mentors and program managers. Thus, M+Box is still a necessary tool.

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<sup>2</sup> Kipp, H. (2014, December 10). Pilot of learning management system shows promising results. Retrieved from <http://record.umich.edu/articles/pilot-learning-management-system-shows-promising-results>

## Upgrade the Intranet of MHPE Website using Drupal

MHPE is now a program under the medical school of university, and it has its own website to store several program-related materials for both on-campus and off-campus users. It also has an Intranet, which requires access permissions, to share the internal resources. The website and Intranet will provide mentors, learners and other users a way to access the program materials as CTools did.

Through the interview of a program manager, we know that the current Intranet is actually built based on Drupal. Drupal is a free and open source content management system. It is quite powerful and has more than 30,000 free community-contributed add-ons, known as contributed modules. Developers can use these modules to create any customized content management system. We found that there are many modules that make the combination of CTools and M+Box possible. Some of our findings include the following:

- Basic function: The core module of Drupal contains the essential building blocks, which will implement basic functionalities like storing and sharing files.
- Searching module: Neither CTools nor M+Box has a good searching system. Drupal has several modules like “Coffee” and “Teleport” to support a quick site search, which saves the time of indexing and searching.
- Notification module: Some users indicated that they were disturbed by the endless notifications from M+Box. Drupal provides a “Better Message” module that allows for the creation of a customized notification system.
- Collaborative working environment module: CTools and M+Box don’t support a collaborative working environment like Google Docs. But Drupal has many modules like “Editor Notes” or “Stickynotes,” which could create a collaborative environment for multiple users to edit or comment on the same page. In addition, the “RoleAssign” module will make it possible to assign work to different group members. These functions will make communication on the content much more efficient.

MHPE may need to hire some outside technicians to upgrade the current website and be responsible for the possible technical issues in the future. Nonetheless, we believe that MHPE could create a unique and comprehensive customized platform. MHPE stakeholders could use a comprehensive but light-weight and fast content management system instead of M+Box and CTools together.



## **Conclusion**

Our investigation yielded five main findings: 1. Learners do not know where information about the program and administrative processes are stored; 2. Information does not consistently flow between committees and mentors; 3. The mentor role is complex and unstandardized; 4. Learners have inconsistent access to content experts and committees; 5. A more comprehensive and organized content management system is needed for MHPE. This report provided detailed recommendations on increased mentor training, content management systems, information visibility, and more. We believe that the implementation of these recommendations would benefit all stakeholders in the program.

