THIS GUIDE IS TO BE READ IN CONJUNCTION WITH QUICK GUIDE TO DESIGN REVIEW

Pedagogical Advantages

The Design Review process used in the undergraduate learning environment develops student capabilities to generate, interpret and apply peer feedback, and to develop self-evaluation capabilities. In this setting, while the Designer roles may be undertaken by individuals or teams, the Design Review process is best done by a review team of 4-5 students.

Undertaking the Design Review process also provides an opportunity for students to reflect on and hone decision-making processes and to develop an understanding of how the various elements of the design process are interrelated and interdependent. Review, reflection and decision making are vital professional skills as well as skills for being effective learners.

The Design Review process builds on and requires the capabilities and knowledge developed in previous learning about Design Verification and Project Meeting Minutes.

Assessment

The most suitable assessment tasks are those which mimic authentic project requirement specifications and review requirements, and have sufficient complexity so students need to make decisions about alternative options for approaches or actions within the Design Process. A case-study approach can be used for this purpose. Ideally, however, integrating this within a larger design project reinforces the role of Design Review within the overall project context.

Note that the Assessment is both a learning activity and a means of evaluating progress and performance. Marking can be limited to confirming whether there is evidence that students considered appropriate questions, justified decisions based on relevant technical knowledge and the information provided by the design team, and applied the 5 steps of the Design Review process. Assessment loadings should reflect time and effort students need to complete the Design Review process.

Indicative Assessment

For a major design project, students undertake a Design Review. This will be done once the design team has identified the design inputs and the proposed methodology and before completion of the design. Students must follow the five-step process in the quick guide to identify the User Needs, Design Inputs, Design Process, Design Outputs and Product/Service relevant to the design project and review how the team is addressing these to deliver the design project outcomes.

Each Design Review will be facilitated and chaired by a member of a different design team. However, the other members of the Design Review team are the remainder of the design team. The Facilitator/Chair's role is to provide an alternative voice in the discussion, review the design project with "fresh eyes", and provide feedback from the point of view of a knowledgeable outsider. The design team does not have to agree to the suggestions and feedback from the facilitator/chair. They must, however, give fair and respectful consideration of all ideas and points of view expressed at the review meeting(s).

Design teams will meet at least once, set the agenda and take minutes to undertake the review. Technology can be used to enable a real time/synchronous meeting. Ideally all meeting participants will be able to see and hear each other. The design team will also document the recommendations for improvement/change resulting from the review process and record in the project documentation how the design project responds to those recommendations across the life of the project.

Implementation

If using a case-study approach, the review process can occur at any time after the necessary instruction is provided. If undertaken as a part of a larger design project, design review should occur towards the middle or end of the project but before final submission of the completed design project deliverable(as) to ensure feedback can be reflected on and used.

If practicable, supervisors should observe review meetings in progress and the development of subsequent documentation to provide informal formative feedback and to ask critical guiding questions.

Design teams of four or more are desirable if total class numbers allow. These teams will nominate a facilitator for another team, e.g. Group A provides a facilitator for Group B, Group B provides a facilitator for Group C, and Group C provides a facilitator for Group A.

It is expected that all members of the Review team will equitably share the work required to arrange, plan, participate in and report on the review meeting.

Sample instructions

Form a design team. Nominate a facilitator for a review team. Schedule, set agenda for and take minutes from at least one review meeting, facilitated by a facilitator nominated by another design team. Follow the five-step design review process. Provide documentation to the review meeting that contains all the relevant information needed to make design decisions.

Once the review is completed and recommendations made to the design team submit:
- Agenda and minutes of the review meeting(s)
- Copies of documents, drawings, models etc considered by the review team
- Recommendations from the review how the design team will respond to the recommendations. Recommendations and responses must include justifications:
  - Why and based on what evidence are the recommendations made
  - Why and based on what evidence are the decisions to respond in that specific way made

Indicative Rubric

	Not Satisfactory	Satisfactory	Very Good - meets Satisfactory criteria plus…

Step 1: Role Allocation	Roles not allocated for:
	    Design Review facilitator
	    Design Review coordinator
	    Design Review administrator
	Responsibilities of each role not explicitly identified
	Evidence of unfair or disrespectful decision-making processes in the allocation of roles
		Roles allocated for:
		    Design Review Facilitator
		    Design Review Coordinator
		    Design Review Administrator
		Facilitator and design review teams know who they will work with
		Responsibilities for each clearly identified
			Evidence of collaboration and cooperation between teams to identify and allocate roles, particularly that of Facilitator
			Evidence of consideration of
			    equitable distribution of workload
			    matching strengths to responsibilities
			    encouraging to appropriately take on new experiences and challenges

Step 2: Planning	Time, date and/or location for the review meeting(s) do not reasonably take account of availability of all required team members and their access needs, and the suitability of the location for the purpose Not all members of the review team advised of the meeting details in a timely manner	Suitable time(s), date(s) and location(s) for the review meeting(s) arranged that take account of availability of all required team members and their access needs, and the suitability of the location for the purpose All members of the review team were advised of the meeting details in a timely manner HAZARD identification and review is on the design review agenda	Time, date and location for the review meeting(s) arranged to optimise robust and informed participation of all Design Review process participants More than one meeting held and review activities undertaken by review process participants between meetings to enable efficient conduct of meetings All members of the review team provided with extensive and relevant documentation relating to the Design project and review processes, including documentation to assist participants to understand the reasoning behind design decisions

Step 3: Design Review	Agenda either not set, or not followed in meeting(s)
	Minutes don't contain
	    decisions made
	    actions to be taken
	    concise, complete and accurate record of the basis for decisions
	    conclusions and recommendations for improvement/correction
	Minutes not provided in a suitable format
	Minutes recorded or presented in an unclear or confusing manner
	Minutes don't reflect that due consideration was given to evaluating whether:
	The plan is likely to result in the output expected
	The design and the process are/will be fit for purpose given the users' needs and design inputs, and the intended output as a product or service
		Review team considered whether:
		    The plan is likely to result in the output expected
		    The design and the process are/will be fit for purpose given the users' needs and design inputs, and the intended output as a product or service
		    Reasonable design assumptions, inputs and acceptance criteria have been/will be used.
		    A reasonable design methodology has been/will be used
		The design documentation and/or calculations meet the identified design requirements, including relevant standards as appropriate.
		The design decisions are reflected accurately in the associated documents (drawings, reports etc)
		Use of Agenda reflected in Minutes
		Hazards are "tabled" at the review.
			Minutes reflect that:
			    Multiple perspectives and fresh ideas were considered and debated
			    Creative and innovative responses to meeting Design project inputs and users' needs were considered and debated
			    Recommendations for alternative solutions and improvements were considered and debated
			    Decision-making grounded in relevant and valid theory
			    Recommendations likely to result in a final output that meets users' needs and design inputs

	Not Satisfactory	Satisfactory	Very Good - meets Satisfactory criteria plus…

Step 4: Documentation	Minutes do not contain or provide incomplete recording of:
	    decisions made
	    agreed actions to be taken by whom and when
	    concise, complete and accurate record of the basis for decisions, e.g. what evidence was considered
	    conclusions and recommendations for improvement/correction
	The nominated administrator documents the Design Review process including
	    Minutes plus any relevant additional documents distributed to the design team and facilitator in a timely and appropriate manner and format
	    Recommendations are technically accurate and valid
	    Recommendations focus on editorial & style comments instead of "whether the design fulfils its requirements"
		Minutes contain:
		    decisions made
		    agreed actions to be taken by whom and when
		    concise, complete and accurate record of the basis for decisions, e.g. what evidence was considered
		    conclusions and recommendations for improvement/correction
		The nominated administrator documents the Design Review process including:
		    Minutes plus any relevant additional documents distributed to the design team and facilitator in a timely and appropriate manner and format
		    Recommendations are technically accurate and valid
			Documented discussions, conclusions and recommendations demonstrate advanced knowledge of relevant theory
			Documented discussions, conclusions and recommendations demonstrate creative/innovative application of relevant theory
			Conclusions and recommendations expressed persuasively – strong, logical and appropriately focussed argument to accept recommendations
			Design Review documents reflect team members engaging in respectful, professional, robust and informed exchange of ideas

Step 5: Incorporation of Review Outcomes	No or unclear indication provided in design documentation of what the design team will do in response to the review process	Design documentation adjusted to reflect the intended response to recommendations arising from the review	How the response to recommendations fully addresses all the elements of the design process well-argued and supported by a deep understanding of the relevant theory
Step 6: Close Out of the Review	List of all actions agreed at review meetings not included in documentation or incomplete Documentation does not clearly indicate what actions were completed by whom and when during or in response to review meeting Outcomes of the review process unclear, incomplete or missing	The nominated coordinator: Confirms that each outcome/action item has been addressed – in the form of who did what, when Records any variations to or departures from the agreed outcomes Distributes confirmation of actions/outcomes completed and/or variation to agreed actions or outcomes to review team Distributes all relevant and required documentation in an appropriate and timely manner	Where any agreed actions are incomplete or there are any variations to the agreed actions or outcomes, these are recorded by the nominated coordinator, including reasons and the actual or potential effect on design/design process

Frequently asked questions

1. What about plagiarism or students who see this as imposing on them ideas not their own?

The objective is for students to see other design options and points of view to generate the potential for self-evaluation and reflection. Students don't need to accept the feedback provided and must justify their response. They can't then take the work or ideas of others without acknowledging their source and therefore avoiding plagiarism. Only minor changes and corrections are required as a result of the verification rather than a redesign. The teacher may spot-check calculations but are not essential.

2. When should it be conducted in the assessment cycle?

As a guide, the review process should be late enough in the assessment cycle to ensure that any opportunity for plagiarism is minimised (students must focus on improvement to their own design rather than attempting to completely copy another design), but with enough time to allow modification to the design if necessary through reflection on the peer feedback.

3. How long should students have to complete the process?

Although a short turnaround time for submission is consistent with industry requirements, the actual submission deadline should allow students to hold at least one meeting of at least 1-hour duration and prepare documentation post-meeting. They will need to include time to review documentation and write up an intended response to recommendations. A 3-5 day turnaround is workable. The teaching component – explaining the nature and purpose of the review process and expectations regarding the task can be completed in a one-hour teaching session. The objective is for students to experience the conduct and documentation of a design review rather than making changes to the design.

4. How much guidance should be given to students upfront?

The level of guidance is generally at the discretion of the educator. Demonstrating the process and standard of the review process and documentation using an exemplar is recommended before students perform the review process for the first time or if student responses indicate further explanation is required. Subsequent practice may only require a verbal introduction. It should be noted that any learning activities and assessment tasks should be accompanied by clearly expressed explicit instructions and criteria for success. For most teaching environments used to date, the 'less is more' approach has been very successful in encouraging student curiosity, innovation and independent study.

5. What documentation is required for the review meetings?

Provide documentation to the review meeting that contains all the relevant information needed to make design decisions, including but not limited to:

- Design assumptions, inputs and acceptance criteria being used to make design decisions
- Design methodology
- Relevant standards as appropriate
- Calculations, drawings, models as appropriate

Further Reading & References:

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