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Lighting design: a creative, technological and collaborative pursuit

Abstract:

The lighting design is often the most compromised element of a theatrical production as it is traditionally the last of many designs to be realised before opening night. Lighting, however, is vital because without artistic lighting, a production, regardless of how ingeniously and skilfully it is devised, will remain, if not in literal, then at least in figurative darkness. The lighting design is also the aspect of a production most constrained by time: the script lies waiting to be redeployed or re-imagined; the director's notes are archived or reused; sets and costumes are put on display or into storage; sound is remixed or replayed; and the actors are photographed for advertising and programmes. In sharp contrast light is cued, it illuminates, and then it is gone. The creative processes that underpin lighting designs are changing. This paper highlights some of the technological changes the discipline has witnessed over recent years to provide an overview of the praxis of lighting designer's craft and, in the context of these innovations, to ask how this has impacted upon creative processes. Are lighting designers more, or less, creative as tools become increasingly advanced? Does conflict between traditional and modern approaches to lighting facilitate a new type of creativity?

Biographical note:

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Keywords:

creativity – lighting design – theatre

Introduction

If creativity is based on ideas, then lighting designers are creative artists. They begin with an idea based upon another creative work such as a text, some music or a piece of choreography. This idea involves manipulating light and shade, and space and time, in order to enwrap the performer in a carefully crafted image[1]. No matter how steeped in imagination, however, this idea must be realisable in reality. The lighting designer uses his or her skills to produce a range of images that engage with the audience, create an emotional reaction and mark a moment in time of the production. The bulk of the scholarship available investigates the tools used in illuminating productions and how to create effects rather than the primary functions that the lighting designer actually performs. This paper is an opportunity to discuss the skills and creativity that are utilised by a lighting designer in the illumination of a production.

Background

In order to explore these functions, this paper touches on the history of lighting design technology to provide a context for the praxis of the lighting designer. Stanley McCandless (1897-1967) is often considered the grandfather of modern lighting designers in defining the craft and the method for lighting the stage (Lampert-Greaux 2007). In his *Syllabus of stage lighting* (1964) McCandless discusses both his contemporaries and predecessors with a brief summary of their contributions to the field (116-17). The praxis of, and theory underpinning, lighting design is well documented by contemporary designers such as Richard Pilbrow (1997) and Francis Reid (2001). Pilbrow discusses four main elements: the basic principles of illumination; a brief review of stage lighting over the millennia; notes on the author's and other designers' careers; and a substantial final section he titles 'Mechanics' which is overflowing with technical data of use for the contemporary designer. Reid approaches the subject matter in the reverse order, dealing with the fixtures and fittings of modern lighting before discussing some approaches to illuminating different theatrical styles. His book closes with a section detailing several career pathways and providing information regarding further professional development for designers.

Lighting design can also be examined from the director's perspective. English director Katie Mitchell's *The director's craft: A handbook for theatre* (2009) includes several lighting-related sections that discuss the purpose of stage lighting and the nature of the director's interaction with the lighting team. Mitchell dedicates almost ten pages of her text to the move into the theatre and the creative process this involves, particularly for the lighting designer – thus touching on the functions of this important element of the creative process.

American textbooks tend to bundle lighting and scenic design together, perhaps as a reflection of their dependence on the other. Without a set, light has very little to illuminate and without light, the scenery will remain undiscovered. Gillette's *Theatrical design and production: An introduction to scene design and construction, lighting, sound, costume, and makeup* (2005) and Parker, Wolf and Block's *Scene*

design and stage lighting (2009) take this approach. These texts build upon the information provided by Pilbrow and Reid by providing additional descriptions of the design and technology functions of the designer. This discussion goes further, to propose that the role of the lighting designer is intensely creative and comprised of almost equal parts problem solver, administrator and storyteller. The below will build upon the existing body of literature to briefly address each of the (creative) functions that a lighting designer fulfils.

Brief history of lighting technology for theatrical designers

The creative processes that lighting designers follow have been greatly influenced by technology, as Pilbrow observes: '[t]heater has always used the technology of its period' (1997: 165). In order to understand the creative aspects of the lighting designer's tasks, it is therefore necessary to briefly consider the history of the technology lighting designers have had access to. The first major development came in the ability to control fire, thus creating light, in the Palaeolithic Period. There were no further changes for tens of thousands of years (Ganslandt and Hofmann 1992: 12-13), until the sixteenth century when candles and oil lamps became increasingly common with the added benefit that lighting designers could darken the auditoria to focus audience attention towards the stage (Brockett 1991: 146). Pilbrow considers this period to have witnessed the birth of the theatre lighting designer (1997: 165). Improvements in the quality of candles preceded the introduction of gas lamps (Pilbrow 1997: 165-72; Brockett 1991: 146-47), which were in turn replaced by electric lamps, and lighting designers found limelight, dimming and theatrical spotlights all at their disposal (Brockett 1991: 424; Pilbrow 1997: 175-77). The mid-twentieth century saw improvements in fixtures matched by similar improvements in dimming ability (McCandless 1958: 7; Parker, Wolf and Block 2009: 457-62; Pilbrow 1997: 178-80).

Robinson observes that '[t]he rate of technical change in the past 50 years has been breathtaking. But the indications are that the revolution may only just be getting underway' (2011: 27). This phenomenon is easily seen in the technical environment of the contemporary lighting designer. A production that may have once had a dozen lights operated on a manual lighting board, is now more likely to comprise hundreds operated on a complex computer controlled board that can record and replay millions of scenes, effects and cue lists simultaneously and independently of each other (Philips Strand Lighting n.d.). Pilbrow captures the challenge that technology brings to the lighting designer's task, stating that technology must be matched 'with a creativity that is always sensitive to the theatre's essentially human needs, so that lighting plays its appropriate role in the service of the living theatre'(Pilbrow 1997: 187). This living theatre is now dominated by 'smarter' fixtures with a variety of moving or intelligent lights and accessories such as colour changers and effects makers. Such advances do not diminish the role of the lighting designer: while adding to the designer's repository of effects, they do not dictate how such effects are to be deployed. Creativity remains central to the lighting designer's core business.

The praxis of the lighting designer

There is no standard reference directory or operating manual that lists solutions to lighting problems thus necessitating ongoing creativity on the part the designer. Robinson defines creativity in terms of imagination, the development of concepts, and putting ideas into practice (2011: 2-3), three elements that could also describe the core skills of a lighting designer. For, indeed, the lighting designer as imaginative storyteller needs to develop conceptual solutions to artistic problems and then manage the practical task of organising and delivering his vision. This creativity is evidenced when lighting designers are credited in the theatre programme in the production credits. The name of the lighting designer generally appears below the set and costume designers along with the sound designer and stage managers in a section titled 'creative team' and above the principals and the general company members. The 'team' label clearly reinforces the collaborative approach that enables the successful realisation of a production.

In this, the lighting designer's administrative functions can be substantial. Consider the artefacts that a production generates: the stage manager assembles a document that records the necessary details that enable the production to continue should there be a calamity or for it's future restaging. The prompt copy[2] contains a fully annotated script with the original text, changes made to it, and the blocking[3], along with many other important records. Often copies of notes and references[4] the director or cast have brought to rehearsal are included in the prompt copy. The stage manager will also collate relevant documentation, ephemera and source materials from the various designers to enable the production to be reproduced each night or remounted in the future[5]. In sharp contrast, no matter how much documentation is generated, the lighting is cued, it illuminates, is viewed by the audience who experience an emotional response, and then it is gone. To be replicated, all other production elements must be replicated as well, unlike sound (which can be recorded and played again) or scenery elements that can be reassembled independently of the other design elements.

As a direct result of the nature of light, the lighting designer does not submit a declaration of what they will achieve in the theatre[6]. The documents that may capture the lighting designer's intent are the design statement, cue synopses and other materials such as renderings[7] and references, but these are invariably a starting point, not the result of an intensely creative plotting session[8]. English director Mitchell observes that '[h]owever hard a lighting designer has worked on a lighting plan they can not possibly anticipate exactly what the combination of those lights will look like in the space' (2009: 204) and this describes another quandary of the lighting designer: while the primary aim is to illuminate, secondary requirements are to amplify or reinforce the meaning, definition and emotion of the stage.

In lighting, the communication of ideas along with technical information has to be administratively efficient in order to allow for as much time as possible in the theatre to be focused on the creative requirements of the illumination. Like what stage managers might lodge in their prompt copies, lighting designers have to generate and store a similarly large amount of documentation in order to communicate the technical

aspects of their craft[9]. Artefacts that communicate these aspects include items such as the data file from the lighting console and running sheets for the crew. The lighting team typically experience three intensive sessions[10] in the theatre, a rigging phase that is shared with other departments, the focusing (positioning) of the lights and, most importantly, the plotting session where the cue positions are confirmed and illumination levels are set, and for which the theatre is usually solely assigned to the lighting team. In this context, the lighting designer's ability to not only deliver but also administer their craft is becoming more important as the complexities of technology become more demanding. Ming Cho Lee has summarised this trend observing that as 'technology develops, productions become increasingly more complex, and therefore more dependent on organization' (Schneider 1997: 199). As each of these sessions advance, the lighting team will record the progress and the outcomes of this creative work.

The lighting designer exists in a world in which 'successful design of any kind is about finding solutions to problems' (Moran 2007: 71). In most cases, the theatre was designed and the lease for the season signed before the designer was appointed. The equipment and facilities of the venue are often fixed and the budget restrictive, while the eternal constant of time limitation must also be considered. The allocation of time to activities in the theatre is set out in the production schedule. This document is often conceived before the appointment of the creative team, and at its core is one immovable deadline: the first performance in front of an audience. The production schedule is an attempt to balance the needs of the various production departments (such as lighting, sound, the scenic elements) against the producer's desire to minimise the expense of an empty theatre and present a performance to a paying audience (Marshall 1994: 2). Added to this mix of recurrent issues are those generated by the collaborative creative processes utilised by the production team in realising the director's vision. It is impossible to discuss every problem the lighting designer might encounter in a given production. The issues can however, be grouped under four broad headings:

- effects – the identification of lighting effects in the text and those that remain critical to the action;
- spatial – such as the design of the theatre, placement of the set relative to the stage and audience's view of the action;
- scheduling – deciding what to pursue in which order and how to maximise the results, including what tasks can be undertaken concurrently with others and which can be done without the lighting designer present; and
- fiscal – utilising the restricted budget to deliver the best results, prioritising expenses against the overall production design and director's vision.

Safety is also a consideration. Lighting designers work with electricity and lamps become extremely hot. Often work is done at great heights and not always carried out in an ergonomic manner. Occasionally, naked flame and pyrotechnics are involved along with smoke machines and hazers that provide particles for the light to reflect off. Spatially, the designer has to consider access and egress in and around the stage and the illumination of the backstage working area so as not to interfere with the stage

lighting[11], while their scheduling has to consider achievable timeframes which address repetitive tasks and allow breaks for stretching, warming up and meals (Gardyne 2004: 170).

Because of the constraints generated by its late placement in the production schedule, the execution of the lighting design becomes an exercise in time-based problem solving. When the production moves out of the rehearsal space and into the theatre, elements such as the blocking, costumes and properties are either complete or as complete as possible – the scenery for example will be made but not assembled. The lighting design, however, will not have progressed further than the plan and accompanying documentation discussed above. The designer can adjust elements of the design beyond opening night if they wish. More significant changes, such as adding or removing lights, are rarely made after the first dress rehearsal, although cue points can be moved, entire cues deleted or intensity levels amended with relative ease. This flexibility is not always a benefit, as some directors use lighting as a quick fix for other problems – Mitchell writes, '[i]f you have a problem, think about how a lighting … decision might help you find a solution' (2009: 180). The reverse is also true; lighting designers will contribute creatively to the overall running of the show such as assisting with suggesting better choreography for a scene change or recommending relocating some of the action so that an effect can be more dramatic or otherwise improved.

The final and most important element of the lighting designer's work is that of storyteller. The lighting designer takes the lights, a set or space and some text, a piece of music or a phrase of a choreography and starts to create images, figuratively painting pictures with light[12]. Pilbrow puts it another way: '[m]odern lighting creates a world of light that enwraps the actor, linking him with his environment. Lighting provides the glue that joins all the elements of the production together' (1997: 3). The actors typically rehearse a play for 'three to four weeks' (Kelly 1991: 98) and up to five weeks for a technically difficult work (Gardyne 2004: 96), while the creative team are engaged and start their preparation up to three months before opening night. Once the production begins, the lighting designer must utilise his or her skills and experience, collaboratively with the creative team, to effectively convey the message the playwright, composer or choreographer has produced and create an emotional reaction, or perhaps to 'underline … the full emotion and meaning of the play' (Pilbrow 1997: 3). As a storyteller, the lighting designer acts as a conduit to the world of the play for the audience. When this effective communication is achieved, it is the result of several weeks, or more often months, of study that includes researching the requirements of the production[13], examining references presented by the creative team, attending rehearsals[14] and scouring the text for clues[15]. The lighting designer is telling the same story as the actors, however using light and colour rather than the human body or spoken word (Walters 1997: 72).

Visual cues, such as the controllable properties of colour, intensity, distribution and movement, are utilised to add a layer of creative enterprise to the work of the other artists involved in the production. However, 'it can become very easy to fall into the trap of art over visibility' (Frohling 2010: 47) and the designer often has to prioritise one over the other, yet this decision in itself will often become part of the storytelling.

In the opening of Shakespeare's *Hamlet*, for instance, designers may give the actors only a very small pool of light to work within and illuminate the battlements slightly brighter in order to reinforce the subservient nature of the sentinels, but use dark colours (such as saturated blues) to indicate that it is a cold night. Perhaps the clearest example of lighting as conveyor of story is how lighting operates in motion pictures. In film noir, for example, the 'bad guys' lurk in dimly illuminated taverns and alleyways with shadows to play with, while the 'good guys' live in a world dominated by more even lighting on main streets and open spaces reinforcing the meta story that they have nothing to hide (Phillips 1999: 248-51; O'Rourke 2010).

The lighting designer does not operate like an oil painter who can continually mix and add colours to their work, the lighting designer's creativity primarily comes in two intense phases. The first is when the lighting plan is drawn up. This is the point at which designers commit to the selection, placement and grouping of the fixtures they will use to realise their designs. The plan is a graphical communication of their creative ideas and contains a multitude of information such as: the use of colours and gobos; fixture circuiting; channel allocation and addressing information; accessories such as booms and stands to hang lights from; barn doors or top hats to shape the light; the position of the masking; the 'practicals', that is, the scenic or property elements that will illuminate; and a title block to record production information. Although originally they were hand drafted, most lighting designers now deploy computer programmes such as AutoCAD or Vectorworks to record their plans. Similarly, before computers, most of the documentation that supported the lighting plan such as a colour call[16] was hand marked up on carefully ruled pages or copied templates. Computerisation assists the designer in balancing administrative completeness and efficiency without the demands of recording these elements taking over the creativity and delivery of a realised design. Each production has differing requirements, however the lighting plan is usually finalised in the closing weeks of rehearsal, when the actors are running scenes and the lighting designer has completed his or her research.

Another important document that designers use to communicate their ideas and support the plotting session is the cue synopsis. After the lighting plan, this is the next most important document the lighting designer will create as this record provides a context and framework for the next phase of creativity. The cue synopsis proposes how each 'state is constructed, links each state to a particular piece of action and place in the script or music, and details how we get onto and out of each state' (Moran 2007: 97). Just as actors base their creativity on the text, the designer will use the cue synopsis to tell the story of the lighting, reinforcing that the 'main process of art is description' (Robinson 2011: 191). The cue synopsis also functions as a checklist for communication between the creative team, providing the lighting designer with a list of concepts such as the mood or atmosphere and the place or time of day. The synopsis also focuses the designer's creativity toward an output (the visual picture on stage) rather than an input (where to place the cue and what is the action on stage). Like many creative activities that the designer undertakes, there is no prescriptive approach to the cue synopsis. Most designers start by extracting clues from the text shortly after their appointment to the role. This list is amended as discussions within

the creative team are held and rehearsals are attended and a cue synopsis is then reached in conjunction with the lighting plan. In this, the relationship between all three functions of the lighting designer's role are revealed – the document must be administratively efficient, easy to read and understand as well as supportive of the storytelling element which must have solved the problems of the production.

The second, and most important phase of the lighting designer's creativity is the plotting session. The plotting session is the point at which the lighting designer begins to compose the scenes (based on the cue synopsis) using the lights that have been hung, circuited coloured and focused. Essig observes that '[a]lthough a significant phase of the lighting design was completed with the light plot, in a sense the lighting designer's job actually begins at the cue writing stage' (2005: 231). The plotting session is the 'great moment of truth for the lighting designer' (Reid 2001: 106), the point where the designer discovers if they have 'a good lighting design, one that provides that emotional response' or 'just the beautiful stage picture' (Frohling 2010: 47). The plotting session is not approached as a blank canvas from which to begin, rather the focus is on taking the outline from the synopsis and filling in details, the shading and texture that create a fully composed image[17]. The lighting that results from the plotting session should add meaning to the text, music or chorography based upon the research and documentation collected in the early stages of the design. Collaboratively, the lighting designer, director and occasionally the other designers will select what will be revealed through shadow or highlight, colours and textures by setting the levels of each individual fixture. If moving (or 'intelligent') lights are being used, their position will also be set, along with the colour and level. The session will confirm[18] when changes to the lighting happen, and at what speed. With modern computerised equipment, it is easy to make a half hour sunset appear realistic through gradual dimming and by changing the colour of a backdrop. Throughout the plotting session, the lighting designer aims to make each moment or cue unique but maintain stylistic consistency, avoiding the two extremes of all the scenes appearing the same or so radically different that the lighting becomes obvious and is dominating.

For light to be observed, it must be reflected. The lighting designer is concerned not solely with lighting a stage but is also interested in the reflection of light from an actor, dancer or singer moving through a space. For this reason, the lighting design is not completed at the plotting session. A good designer will continue to observe and make minor adjustments, refining and finessing their executed design over the technical rehearsal and previews, and possibly beyond. These minor refinements can be as small as adding or subtracting light to adjust the balance on stage, moving cue points or times, or as significant as adding additional lights or new cue points. The lighting designer's creativity is thus, finally, demonstrated by the constant interpretation and reinterpretation of what they see and present on stage. The realised design is also critiqued over several performances with adjustments made to ensure the best possible outcome is presented. Innovation is part of the lighting designer's creativity, spurred on by the problem-solving function of their role and the constantly changing environment that the theatre provides.

Conclusion

The lighting design of a theatrical performance may be viewed as a support mechanism for the production. This aligns the role of the lighting designer more to that of a technician rather than that of an artist/artisan who is a partner in the creative processes that deliver a production to an audience. Seeing a lighting designer as a technician does reflect the primary purpose of theatrical lighting – to illuminate and direct attention to the stage – but does not take into account the multitude of creative decisions that have to be made by the lighting designer. Each of the three primary functions that the lighting designer performs – problem solver, administrator and storyteller – embodies creativity through the constant need to generate novel, varied and complex solutions to unique and always-changing problems. These solutions respond to, and bring to life, the vision of not only the director but also the other creative team members and then are communicated to a wide range of stakeholders such as producers, actors and technical staff involved in the realisation of the design. As the 'arts are concerned with understanding and expressing the qualities of human experiences' (Robinson 2011: 274), the creativity of the lighting designer is, thus, reflected in a collaborative but cohesive vision that aids and strengthens the work being presented be it to entertain or to question for, in Jørn Utzon's terms, 'The purpose of light is to reinforce human experience' (Steensen Varming 2007: 30).

Endnotes

1. The four functions of lighting were originally considered to be: Composition; Naturalism; Mood and Visibility (McCandless 1964: 85-86). This is now often expanded to Composition; Focus; Mood; Revelation of form; and Selective Visibility (Pilbrow 1997: 7-9).
2. The prompt copy (or production book) is the script created and maintained by the stage manager that 'contains all the blocking, cueing and management information pertaining to the rehearsals and performances of the play' (Schneider 1997: 51) that according to the Actors Equity Association production contract is 'necessary for the actual and technical artistic operation of the production' (Schneider 1997: 51).
3. Blocking is the written and symbolic recording of the actors' moves and gestures as they perform their part.
4. In a theatrical context, references are documents, ephemera, photographs or realia that add meaning or provide an intervention to the work being performed. It is often easier to visualise an intangible concept than to describe it. For instance in a discussion to describe the isolation of the two centurions (Bernardo and Francisco) standing on the battlements of Elsinore Castle in the opening scene of *Hamlet* a picture of Kronborg Castle in Denmark at night might be displayed.
5. For the National Institute of Dramatic Art's (NIDA) 2009 production of *A Midsummer Night's Dream* (Director Tony Knight, Deputy Stage Manager Renee McClenahan) the index of documentation in the Prompt Copy spanned two standard A4 pages.
6. For instance a costume, properties or scenic designer would produce sketches, swatches and models to provide a visualization of the expected outcome of their work.
7. A rendering is a two or three-dimensional image that shows the proposed lighting of a scene.
8. [1] The plotting session is where the lighting levels are set and the cue points assigned. These levels and cue points will be revised as the rehearsals continue.

9. This documentation would usually include: an annotated script; plans and sections of the theatre; and any specific scenic elements; colour, equipment and patching information for rigging; cue synopsis; rehearsal reports and correspondence; equipment specifications, manuals and other documentation that may be required to execute the design. Although an American approach, the Lighting Archive has a discussion on what a lighting designer would create as part of their work: http://thelightingarchive.org/about.php?doc_id=18.
10. These sessions can range from as short as a few hours for a small event to a week for a large opera or musical production.
11. Blue 'working lights' are often utilised backstage to minimise the amount of spill on the stage while maintaining adequate illumination for actors to safely access or egress the stage and for technicians to work.
12. Lighting designer Ken Billington is often quoted as having said that he always wanted to be an artist but 'I couldn't paint. So I paint with light. I don't use brushes. I use electricity' (Rothstein 2008).
13. Using the text as a base, the designer will look for quotes discussing location, time of day, season, and stage directions. The research will then expand 'into history, culture, art, images, fashion, and building materials and procedures, among numerous other topics' (Medaille 2010: 334).
14. Stage directions have often been inserted in the published script based upon the original production (Moran 2007: 75) and may or may not be relevant to the director's vision and thus after consideration they are not always accepted thus increasing the importance of being in the rehearsal room.
15. Textual clues range from subtle (such as a reference to a place or era) to direct quotations (such as Oscar de Velt's line 'The light, honey. Move into the light. So we can see you. This musical ain't set in a mine shaft' in *Bugsy Malone*) (Parker 2010: 17) and offer suggestions for the lighting which may or may not be accepted.
16. The lighting plan is a graphical representation of how the fixtures will be positioned, coloured and circuited together, which is often presented with a colour call that lists all of the colours and what size it should be cut to.
17. For an interesting discussion of creativity that begins either from a blank canvas or within a set of constraints see Robinson 152-153 (2011).
18. The director and designer will have collaborated on where the cue points are in the construction of the cue synopsis, this is the first time the lights have been seen on the set and possibly with people moving through the light, as a result the cue points may change and be adjusted with each run until they are at the best possible place.

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Acknowledgements

The author would like to acknowledge the helpful and generous assistance of Dr Ian Gaskell, from Central Queensland University, and the useful comments of the peer referees, in producing this article. All errors are, of course, my own.